NBC Bushfire Attack Assessment Report V2.1

AS3959 (2009) Appendix B - Detailed Method 2

Print Date: 31/01/2018 **Assessment Date:** 6/11/2017

Site Street Address: Old Bar Public School, Old Bar

Assessor: Mr Admin; admin

Local Government Area: Greater Taree **Alpine Area:** No

Equations Used

Transmissivity: Fuss and Hammins, 2002
Flame Length: RFS PBP, 2001
Rate of Fire Spread: Noble et al., 1980
Radiant Heat: Drysdale, 1985; Sullivan et al., 2003; Tan et al., 2005
Peak Elevation of Receiver: Tan et al., 2005
Peak Flame Angle: Tan et al., 2005

Run Description: Compliance @ 1090K

Vegetation Information

Vegetation Type:	Rainforest	**Vegetation Group:**	Forest and Woodland
Vegetation Slope:	1 Degrees	**Vegetation Slope Type:**	Downslope
Surface Fuel Load(t/ha):	10	**Overall Fuel Load(t/ha):**	12

Site Information

Site Slope	0 Degrees	**Site Slope Type:**	Downslope
Elevation of Receiver(m)	Default	**APZ/Separation(m):**	24.5

Fire Inputs

Veg./Flame Width(m):	100	**Flame Temp(K)**	1090

Calculation Parameters

Flame Emissivity:	95	**Relative Humidity(%):**	25
Heat of Combustion(kJ/kg	18600	**Ambient Temp(K):**	308
Moisture Factor:	5	**FDI:**	80

Program Outputs

Category of Attack:	LOW	**Peak Elevation of Receiver(m):**	4
Level of Construction:	BAL 12.5	**Fire Intensity(kW/m):**	6377
Radiant Heat(kW/m2):	9.97	**Flame Angle (degrees):**	80
Flame Length(m):	8.13	**Maximum View Factor:**	0.16
Rate Of Spread (km/h):	1.03	**Inner Protection Area(m):**	24
Transmissivity:	0.82	**Outer Protection Area(m):**	0

Run Description: Compliance @ 1200K

Vegetation Information

Vegetation Type:	Rainforest	**Vegetation Group:**	Forest and Woodland
Vegetation Slope:	1 Degrees	**Vegetation Slope Type:**	Downslope
Surface Fuel Load(t/ha):	10	**Overall Fuel Load(t/ha):**	12

Site Information

Site Slope	0 Degrees	**Site Slope Type:**	Downslope
Elevation of Receiver(m)	Default	**APZ/Separation(m):**	34

Fire Inputs

Veg./Flame Width(m):	100	**Flame Temp(K)**	1200

Calculation Parameters

Flame Emissivity:	95	**Relative Humidity(%):**	25
Heat of Combustion(kJ/kg	18600	**Ambient Temp(K):**	308
Moisture Factor:	5	**FDI:**	80

Program Outputs

Category of Attack:	LOW	**Peak Elevation of Receiver(m):**	4.02
Level of Construction:	BAL 12.5	**Fire Intensity(kW/m):**	6377
Radiant Heat(kW/m2):	9.89	**Flame Angle (degrees):**	82
Flame Length(m):	8.13	**Maximum View Factor:**	0.11
Rate Of Spread (km/h):	1.03	**Inner Protection Area(m):**	34
Transmissivity:	0.806	**Outer Protection Area(m):**	0

Run Description: Existing design Oct 2017 - 1200K

Vegetation Information

Vegetation Type:	Rainforest	**Vegetation Group:**	Forest and Woodland
Vegetation Slope:	1 Degrees	**Vegetation Slope Type:**	Downslope
Surface Fuel Load(t/ha):	10	**Overall Fuel Load(t/ha):**	12

Site Information

Site Slope	0 Degrees	**Site Slope Type:**	Downslope
Elevation of Receiver(m)	Default	**APZ/Separation(m):**	17

Fire Inputs

Veg./Flame Width(m):	100	**Flame Temp(K)**	1200

Calculation Parameters

Flame Emissivity:	95	**Relative Humidity(%):**	25
Heat of Combustion(kJ/kg	18600	**Ambient Temp(K):**	308
Moisture Factor:	5	**FDI:**	80

Program Outputs

Category of Attack:	HIGH	**Peak Elevation of Receiver(m):**	3.94
Level of Construction:	BAL 29	**Fire Intensity(kW/m):**	6377
Radiant Heat(kW/m2):	22.42	**Flame Angle (degrees):**	76
Flame Length(m):	8.13	**Maximum View Factor:**	0.236
Rate Of Spread (km/h):	1.03	**Inner Protection Area(m):**	17
Transmissivity:	0.851	**Outer Protection Area(m):**	0

Run Description:	Existing site separation at 1090K		
Vegetation Information			
Vegetation Type:	Rainforest	**Vegetation Group:**	Forest and Woodland
Vegetation Slope:	1 Degrees	**Vegetation Slope Type:**	Downslope
Surface Fuel Load(t/ha):	10	**Overall Fuel Load(t/ha):**	12
Site Information			
Site Slope	0 Degrees	**Site Slope Type:**	Downslope
Elevation of Receiver(m)	Default	**APZ/Separation(m):**	17
Fire Inputs			
Veg./Flame Width(m):	100	**Flame Temp(K)**	1090
Calculation Parameters			
Flame Emissivity:	95	**Relative Humidity(%):**	25
Heat of Combustion(kJ/kg	18600	**Ambient Temp(K):**	308
Moisture Factor:	5	**FDI:**	80
Program Outputs			
Category of Attack:	MODERATE	**Peak Elevation of Receiver(m):**	3.94
Level of Construction:	BAL 19	**Fire Intensity(kW/m):**	6377
Radiant Heat(kW/m2):	15.13	**Flame Angle (degrees):**	76
Flame Length(m):	8.13	**Maximum View Factor:**	0.236
Rate Of Spread (km/h):	1.03	**Inner Protection Area(m):**	17
Transmissivity:	0.843	**Outer Protection Area(m):**	0

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01 February 2018

Patricia Redmond
Conrad Gargett
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Delivered by email:

Subject: Re-assessment of APZ without using 2m wide access path, Old Bar Public School Development

To date, the Old bar Public School development proposal and bushfire modelling output has proposed to utilise the existing (fuel free) access path which extends for approximately 2m onto the Crown Land (Lot 274 DP 753149). The RFS had given a BFSA (D17/3282), using the pathway along the northern boundary of Lot 274 as a part of the APZ.

The potential to utilise the 2m wide path as a part of the proposed 19m APZ is significantly constrained due to following:

- The potential to utilise the Crown Land as APZ is already constrained due to the formal processes.
- Land ownership status (This parcel is currently within an Aboriginal land claim) is not clear and potentially a long process will follow prior to any formal arrangement being granted.

The proponent is seeking to modify the BFSA to eliminate the need for the APZ on adjacent land. To support this proposal, Kleinfelder have re-run the bushfire behaviour models to demonstrate the outputs associated with an APZ that does not include the 2m wide path on adjacent land (i.e. 17m APZ).

The bushfire model outputs are:

- Rainforest, on flat ground separated from the building by 17m (Inner Protection Zone standards)
- Flame length 8.13m (i.e. no flame contact)
- Radiant heat at nearest building surface is 22.42kW/m^2 (formerly 19.81kW/m^2 at 19m)
- BAL29 is applicable to the southern elevation of the new proposed building.

The BFSA stated that construction and design would comply with BAL19 construction standards to the building, except that BAL29 construction standards would apply to roof, southern and eastern elevation.

The modelling conducted by Kleinfelder does not vary the BAL to greater than BAL29 to the southern/eastern elevations.

This document provides justification that the conditions applied in the BFSA D17/3282 are still relevant, even with consideration of the reduced APZ, which has been reduced from 19m to 17m due to the inability to utilise the 2m wide gravel path on Lot 274 DP 753149.

The condition #1 of the BFSA could be amended by removing the statement "*and the pathway along the northern boundary of Lot 274 DP 753149*".

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Run Description: Compliance @ 1090K

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Transmissivity:	0.82	**Outer Protection Area(m):**	0

Run Description: Compliance @ 1200K

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Site Information

Site Slope	0 Degrees	**Site Slope Type:**	Downslope
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Fire Inputs

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Calculation Parameters

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Transmissivity:	0.806	**Outer Protection Area(m):**	0

Run Description: Existing design Oct 2017 - 1200K

Vegetation Information

Vegetation Type:	Rainforest	**Vegetation Group:**	Forest and Woodland
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Run Description:	Existing site separation at 1090K		
Vegetation Information			
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Rate Of Spread (km/h):	1.03	**Inner Protection Area(m):**	17
Transmissivity:	0.843	**Outer Protection Area(m):**	0

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Classification:	Open		

Old Bar Public School Development
Coastal Engineering Risk Management Plan

1.0 Background

Royal HaskoningDHV (RHDHV) have been engaged by Conrad Garnett Architects to provide a Coastal Engineering Risk Management Plan in support of a Development Application by the Department of Education for proposed works to the Old Bar Public School (OBPS) at 22 David St, Old Bar within the MidCoast Local Government Area (LGA) (refer **Figure 1**).

Figure 1: Locality Plan

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2.0 Information Provided

Conrad Garnett provided the following documentation:

DATED	TITLE
14/06/2017	Sheet - 0000 - Cover Sheet.pdf
14/06/2017	Sheet - 100 - 3D Views.pdf
14/06/2017	Sheet - 1000 - Site Plan.pdf
14/06/2017	Sheet - 101 - 3D Views.pdf
14/06/2017	Sheet - 102 - 3D Views.pdf
14/06/2017	Sheet - 2000 - Demolition Site Plan.pdf
14/06/2017	Sheet - 2100 - Ground Floor.pdf
14/06/2017	Sheet - 2101 - Level 1.pdf
14/06/2017	Sheet - 2500 - Reflected Ceiling Plan.pdf
14/06/2017	Sheet - 2501 - Reflected Ceiling Plan.pdf
14/06/2017	Sheet - 2800 - Roof Plan.pdf
14/06/2017	Sheet - 2900 - Homebase Solar Study - Ground level.pdf
14/06/2017	Sheet - 2901 - Homebase Solar Study - Level 1.pdf
14/06/2017	Sheet - 3000 - External Elevations.pdf
14/06/2017	Sheet - 3001 - External Elevations.pdf
14/06/2017	Sheet - 3500 - Building Sections.pdf
14/06/2017	Sheet - 3501 - Building Sections.pdf

Conrad Garnett also provided a preliminary survey of the site (emailed 22/6/17).

The following relevant technical reports were also reviewed as part of the risk assessment:

- Greater Taree Coastal Zone Management Plan (GTCC, 2015)
- Risk Assessment to Define Appropriate Development Setbacks and Controls in Relation to Coastline Hazards at Old Bar (RHDHV, 2014a)
- Black Head to Crowdy Head Coastline Hazard Definition Study (WorleyParsons, 2010)
- Greater Taree Coast Emergency Action Plan (WorleyParsons, 2011)
- Great Taree DCP – Draft Amendments (Midcoast Council, 2017)

3.0 Existing Site Description

The site of Old Bar Public School is on the south eastern corner of the intersection of David St and Smith St and is bounded by a vegetated bushland buffer on the eastern side (refer **Figure 2**). The vegetated bushland includes stands of littoral rainforest of State significance and covered by the State Environmental Planning Policy No. 26. SEPP 26 places planning and development controls under the Environmental Planning and Assessment Act, 1979 over these stands and generally land within 100 mts of the stands. It seeks to preserve and protect the stands.

The site is approx. 19,000 m^2. The vegetated buffer is approximately 60m wide on average between the school and the beach and the crest level of this dunal buffer is approx. 8m AHD.

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The stretch of beach fronting the OBPS is in the lee of a natural offshore reef named Urana Bombora. To the south of the school Racecource Creek crosses the beachfront, with a semi trained entrance (involving a loosely revetted back beach wall and a buried gabion basket training wall structure which partly crosses the berm).

Figure 2: Site Plan

The existing school has a variety of permanent and temporary buildings as well as sporting facilities such as basketball courts (refer **Figure 3**).

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Figure 3 Existing site plan (extract from Drawing no. 1000 Rev B)

4.0 Proposed Development

The proposed development comprises the demolition of seven demountable buildings on the eastern side of the school and the construction of permanent teaching space in the form of a two storey building on the south western corner of the site (refer **Figure 4**). It is assumed that the design life of the new structures is 60 years (RHDHV, 2014a).

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Figure 4 Proposed Site Plan (extract from Conrad Garnett Drawing 1000 Rev B)

5.0 Coastal Hazards

As outlined in the Coastline Hazard Definition Study (WorleyParsons, 2010) and the Risk Assessment to Define Appropriate Development Setbacks and Controls in Relation to Coastline Hazards at Old Bar (RHDHV, 2014a), the site is exposed to a number of coastal hazards.

Historically, Old Bar beach has seen an average recession of half a metre per year which has increased to one metre per year since the early 2000s.

The Urana Bombora, a rock reef feature south of the surf club, reduces but does not prevent the exchange of sand along this beach. There is another reef feature at the southern end of the beach, to the north of Wallabi Point. These features form a leaky beach compartment between Wallabi Point and Urana Bombora and influence coastal processes and subsequent sediment transport at Old Bar beach.

During significant events a large rip cell head generally forms in the central to southern portion of the beach with potential to carry sand offshore. Storm direction has been identified as a significant factor in whether sediment carried by the rip cell is predominately lost or partially deposited within the near shore.

During storm events from the south-east and east-south-east, permanent loss of sand offshore is likely, i.e. sand is deposited in deep water where it cannot return to the beach naturally.

Although offshore transport may be the dominant mechanism for the ongoing sand loss at Old Bar beach, there is also likely to be alongshore sand bypassing, both north and south of the Urana Bombora in storm events with directions other than from the south-east and east-south-east sectors. The amount of sand bypassing the Urana Bombora is likely to be influenced by the beach state on either side (including the open/closed status of the entrance to Farquhar Inlet, a major coastal river entrance approx. 2.4km north of Old Bar).

A sand tracing study with Environmental Tracing Systems Worldwide Ltd (ETS) and RHDHV was undertaken in 2014 to understand the movement of sand along this shoreline. Results indicate that most sand lost from this beach is transported in a northerly direction, with some lost from the system due to transport offshore.

Racecourse Creek, directly south of the Old Bar Public School site is intermittently open to the ocean via a beach berm, and has historically influenced erosion in the far southern portion of the village (Lewis Street area). In the 1990's Council constructed a gabion wall to train the entrance away from the properties in Lewis Street where it was causing beach erosion, to direct it straight into the ocean.

The dune immediately north of Racecourse Creek and Pacific Parade has experienced significant erosion over the past 15 years. The southern edge of the dune in this area has effectively been outflanked by the creek entrance aggravated by the locally very high sand losses from the beach. This has led to Racecourse Creek opening further to the north, away from the area where it was once causing erosion. The loss of this dune is likely to lead to Pacific Parade coming under threat from erosion.

Management of the beach reserve in the vicinity of the school site comes under the Manning Entrance State Park Trust jointly managed by GTCC and Crown Lands.

6.0 Coastal Hazard Risk Assessment

The main coastal risk to the Old Bar Public School site is in the form of coastal erosion/recession. This hazard is assessed in the Coastline Hazard Definition Study (WorleyParsons, 2010) with key parameters adopted and reviewed as required to Account for more up to date information on beach condition (refer Old Bar Beach Coastal Protection Structure Design Investiogation (RHDHV, 2014b) and Risk Assessment to FDefine Appropriate Development Setbacks and Controls in Relation to Coastline Hazards at Old Bar (RHDHV, 2014a). Coastal erosion and recession risk at the Old Bar Public School site is explained further in **Sections 6.1** to **6.3**. Coastal inundation risk is also discussed in **Section 6.4.**

6.1 Likelihood of Coastal Hazard

Likelihood descriptors and associated probabilities (as adopted from those used by Australian Geomechanics Society (AGS)) are shown in **Table 1**. The assessment adopted the values in Column 5, which is considered conservative.

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Table 1 Likelihood descriptors and associated probabilities used by AGS (2007a, b)

1 Descriptor	2 Annual Exceedance Probability (indicative value)	3 Annual Exceedance Probability (AEP)	4 Cumulative probability of event occurring over design life (range) (1)	5 Designated cumulative probability of event occurring over design life (1)
Almost Certain	10%	> 5%	> 95.4%	95.4%
Likely	1%	0.5 to 5%	26.0 to 95.4%	26%
Possible	0.1%	0.05 to 0.5%	3.0 to 26.0%	3%
Unlikely	0.01%	0.005 to 0.05%	0.3 to 3.0%	0.3%
Rare	0.001%	0.0005 to 0.005%	0.03 to 0.3%	0.03%
Barely Credible	0.0001%	< 0.0005%	< 0.03%	not used
Notes (1) Based on a standard formulation relating annual exceedance probability (AEP) and life to probability of a an event (RHDHV, 2014)				

For sea level rise (SLR) and long term recession, three scenarios are considered:

- a "mild case" estimate, taken to have a 95% probability of exceedance (leading to lower recession);
- a "best" estimate, taken to have a 50% probability of exceedance;
- a "severe case" estimate, taken to have a 5% probability of exceedance (leading to a higher recession)

The key parameters developed for the likelihood of coastline hazard are summarised in **Table 2**.

Table 2 Key parameters for the likelihood of coastline recession

Descriptor	Scenario		
	95% exceedance "mild case"	50% exceedance "best estimate"	5% exceedance "severe case"
South from SLSC			
Long term recession rate due to net sediment loss	0.4 m/yr	0.8 m/yr	2.5 m/yr
Long term recession due to net sediment loss at 2074	24 m	49 m	153 m
Adopted SLR to 2074	0.25 m	0.38 m	0.52 m
Long term recession due to SLR	4 m	16 m	44 m
Future uncertainty allowance	0 m	5 m	20 m
Combined recession and rotation allowance at 2074	28 m	70 m	216 m

The relationship between storm demand and recurrence is assumed to follow that described in Gordon(1987) for "high demand" (rip head) beaches. The likelihood of storm demand occurring over the adopted 60 year design life is described using the AGS terminology in **Table 1**, and statistically associated with the three "mild case", "best estimate" and "severe case" recession scenarios for storms occurring:

- at any time over the design life, ignoring recession as per
- **Type** 1 and 2 storms are defined below.

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- Table 3 (Type 1 storm); and
- in the last year of the design life, after full recession as per **Table 4** (Type 2 storm).

Type 1 and 2 storms are defined below.

Table 3: Storm demand likelihood at Old Bar Beach (Type 1)

Likelihood (1)	Cumulative probability over design life (1)	AEP (%) (1)	ARI (years) (2)	Storm demand (m^3/m) (3)	
				North from SLSC	South from SLSC
Almost Certain	95.4%	5	20	130	160
Likely	26%	0.5	200	200	250
Possible	3%	0.05	2,000	280	350
Unlikely	0.3%	0.005	20,000	360	440
Rare	0.03%	0.0005	200,000	430	540

Notes (1) From Table 1.
(2) Statistical relationship between AEP and ARI.
(3) From Gordon (1987)

Table 4 Storm demand likelihood at Old Bar Beach for areas south from SLSC (Type 2)

Likelihood (1)	Cumulative probability of event occurring over design life (1)	Storm demand volume (m^3/m)		
		95% exceedance	50% exceedance	5% exceedance
Likely	26%	80	50	N/A
Possible	3%	180	150	40
Unlikely	0.3%	270	240	150
Rare	0.03%	370	340	240

Notes (1) From Table 1.
(2) From Gordon (1987)

For example, it follows from the above tables that for Type 1 erosion, when a storm could occur at any time over the 60 year design life, it is "likely" that over a period of 60 years that more than 250 m^3/m of sand would be removed in a single storm from the beach and dune in front of the OBPS site.

For a Type 2 assessment, when the storm erosion is taken to occur in the 60th year after full recession, then the likelihood of a storm demand volume would depend on the recession scenario that the storm is being linked to (refer **Table 2**). When particular cumulative probabilities are being sought, then it is found that the contribution of recession overwhelms the description (or likelihood) of the hazard, and the storm demand contribution is relatively small. Thus, for the OBPS site an "unlikely" coastline hazard line would be realized with a very severe 270 m^3/m storm in combination with a "mild" (95% exceedance) recession

scenario, or alternatively with a more moderate 150 m^3/m storm in combination with a "severe" (5% exceedance) recession scenario.

Other bases and assumptions adopted with respect to storm demand included:

- The schematic representation of the coastline hazard zones after Nielsen et al (1992) is applied to describe how storm demand affects beach profiles and foundation capacity (**Figure 5**).
- Pre-storm profiles for the photogrammetric assessment were 2013, 7 years later than those adopted in WorleyParsons (2010a).
- An angle of friction of 30 degrees was adopted for all sand comprising the coastline profile.
- The erosion assessment conservatively assumes that all locations in the study area are equally likely to be eroded in a particular storm (ie, rips could form at any location on the beach).

6.2 Consequences of Coastline Hazard

The consequence descriptors from AGS (2007a, b) are applied, namely "catastrophic", "major", "medium", "minor" and "insignificant". For example, a "major" consequence is associated with a cost of damage between 40 and 100% of the cost of the structure, whereas a "minor" consequence ranges between 1 and 10%. "Catastrophic" (>100%) has the structure completely destroyed and/or large scale damage requiring major engineering works for stabilisation which may exceed the cost of the structure.

A slumped erosion escarpment immediately seaward of the structure was considered to result in "minor" damage due to reduced foundation capacity in that zone. If on engineered piles, then the consequences for the same structure would be "insignificant".

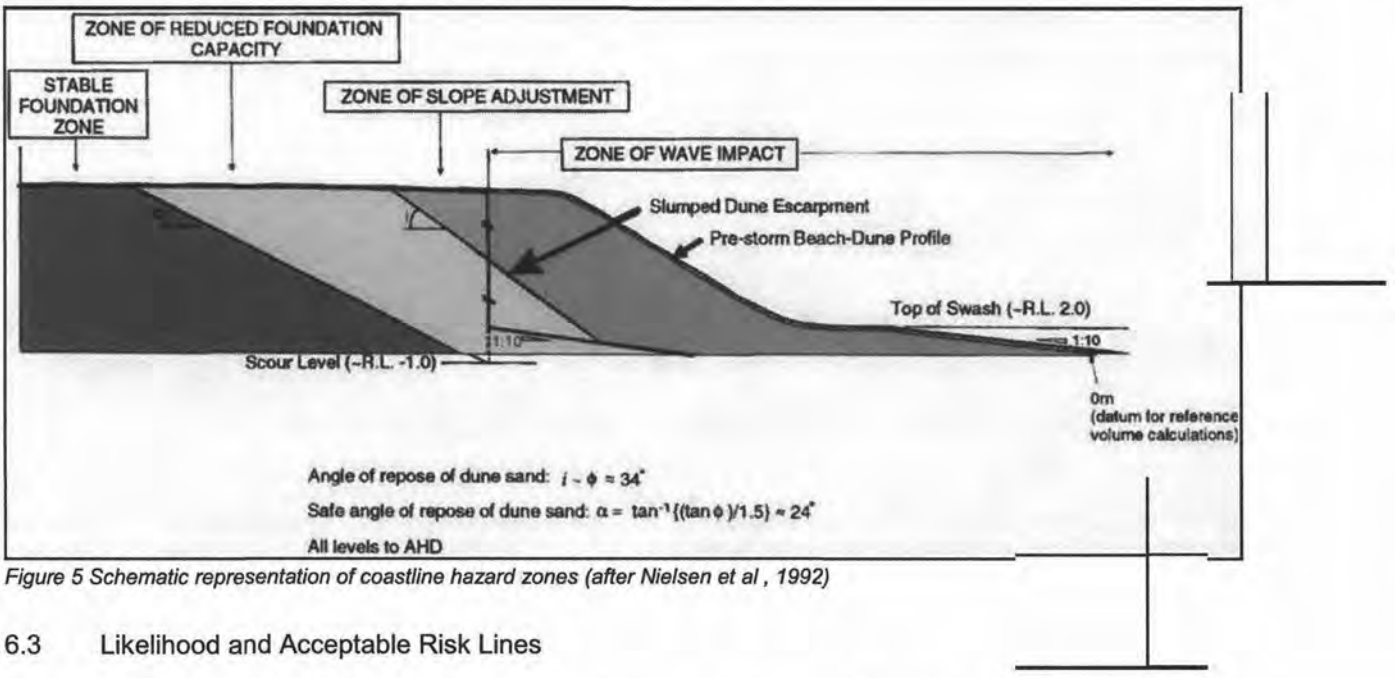

Figure 5 Schematic representation of coastline hazard zones (after Nielsen et al , 1992)

6.3 Likelihood and Acceptable Risk Lines

RHDHV (2014) developed different likelihood lines for coastline hazard. These comprise likelihood lines for Type 1 storms only (no recession), and likelihood lines for the Type 2 storms occurring following (and

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in combination with) the three adopted recession scenarios. A comparison of the likelihood hazard lines with the traditional hazard lines reported in WorleyParsons (2010a) is included. It finds that the traditional Immediate Zone of Slope Adjustment is similar to (or slightly seaward of) the "almost certain" line. At the OBPS site the traditional 2108 ZSA Reduced Foundation Capacity is generally similar to the "likely" line. Two relevant plots for the Old Bar CZMP update are reproduced from RHDHV (2014a) in **Figure 6** and **Figure 7**.

To gauge acceptable risk lines for new development, the risk matrix from AGS (2007a, b) is applied, reproduced below in **Table 5.**

Table 5: Risk matrix

Likelihood	Consequence				
	Catastrophic	Major	Medium	Minor	Insignificant
Almost certain	Very high	Very high	Very high	High	Medium
Likely	Very high	Very high	High	Medium	Low
Possible	Very high	High	Medium	Medium	Very low
Unlikely	High	Medium	Low	Low	Very low
Rare	Medium	Low	Low	Very low	Very low

Based on a review of available literature (which was limited), extensive discussion amongst the AGS Working Group, and a consideration of annualized cost of damage to property, AGS (2007a, b) concluded that the acceptable risk level was considered to be "low" for residential buildings or buildings and facilities where no more than 300 people can congregate in one area. For buildings and structures designated as essential facilities or with special post disaster functions etc, the designated acceptable risk was "very low". It is considered reasonable to characterise schools as requiring a 'low' acceptable risk level which is consistent with AGS (2007a, b).

Thus an "acceptable risk" threshold for new development at Old Bar, including at OBPS, is assessed to be "low" as shown by the bold outline in **Table 5**. On this basis, it follows that an acceptable risk would apply for:

- an "unlikely" coastline hazard resulting in a "medium" consequence – new development constructed on conventional foundations;
- a "likely" coastline hazard resulting in an "insignificant" consequence – new development constructed on piled foundations.

Figure 7 distills the Old Bar CZHD update to two key "acceptable" risk lines for GTCC planning purposes:

- an "acceptable" (unlikely) risk line for new development on conventional foundations based on a 60 year design
- an "acceptable" (likely) risk line for new development on piled foundations based on a 60 year design life with 50% Type 2 storm applied with combined "best" estimate 50% long-term recession.

It should be noted that this in no way advocates the use of piled foundations in the intervening space between the yellow and blue lines in **Figure 7.** To do so would be to ignore the engineering, aesthetic

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and economic considerations that make such a strategy impractical on a receding coast. It is merely an indication that conventionally founded buildings would not have a normal life expectancy in this zone.

Figure 6: 50% exceedance recession scenario Type 2 likelihood lines, and no recession Type 1 "almost certain" likelihood line, compared to traditional hazard lines from WP (2010)

Figure 7 Acceptable risk setback lines determined at Old Bar Beach for 60 year planning period (Blue "unlikely" line – 5% Type 2 storm, 95% recession) (Yellow "likely" line – 50% Type 2 storm, 50% recession)

6.4 Coastal Inundation Risk

WorleyParsons (2010) adopted a 100 year ARI wave runup level (exceeded by 2% of waves) of 6.2m AHD based on a still water level of 1.5m AHD and allowing for predicted sea level rise of 0.9m over a planning period of 100 years (high range scenario).

Runup levels in the order of 6m AHD would only be realised if the foreshore was at this runup height

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or higher. In reality, any waves that overtopped dunes or creek banks in the study area would fold over the foreshore crest and travel as a sheet flow at shallow depth, spreading out and infiltrating over landward areas. Accordingly a significant reduction in the velocity and depth of runup would be expected within about 10m from the foreshore crest. The dune fronting the OBPS has historically had a crest level of no less than 8m AHD so the OBPS site is not likely to be affected by inundation. It is noted that the ground level along the seaward boundary of the OBPS site currently ranges between 7 and 9m AHD with the mean ground level assumed to be no less than 8m AHD.

In the long term, as the beach recedes, it is considered likely the existing dune profile would 'roll back' taking a similar profile to the existing (and pre-existing regime) and as such would continue to be unaffected by inundation.

The assessment developed here by RHDHV is consistent with the wave runup assessment presented in **Figure 8** reproduced from WorleyParsons (2010).

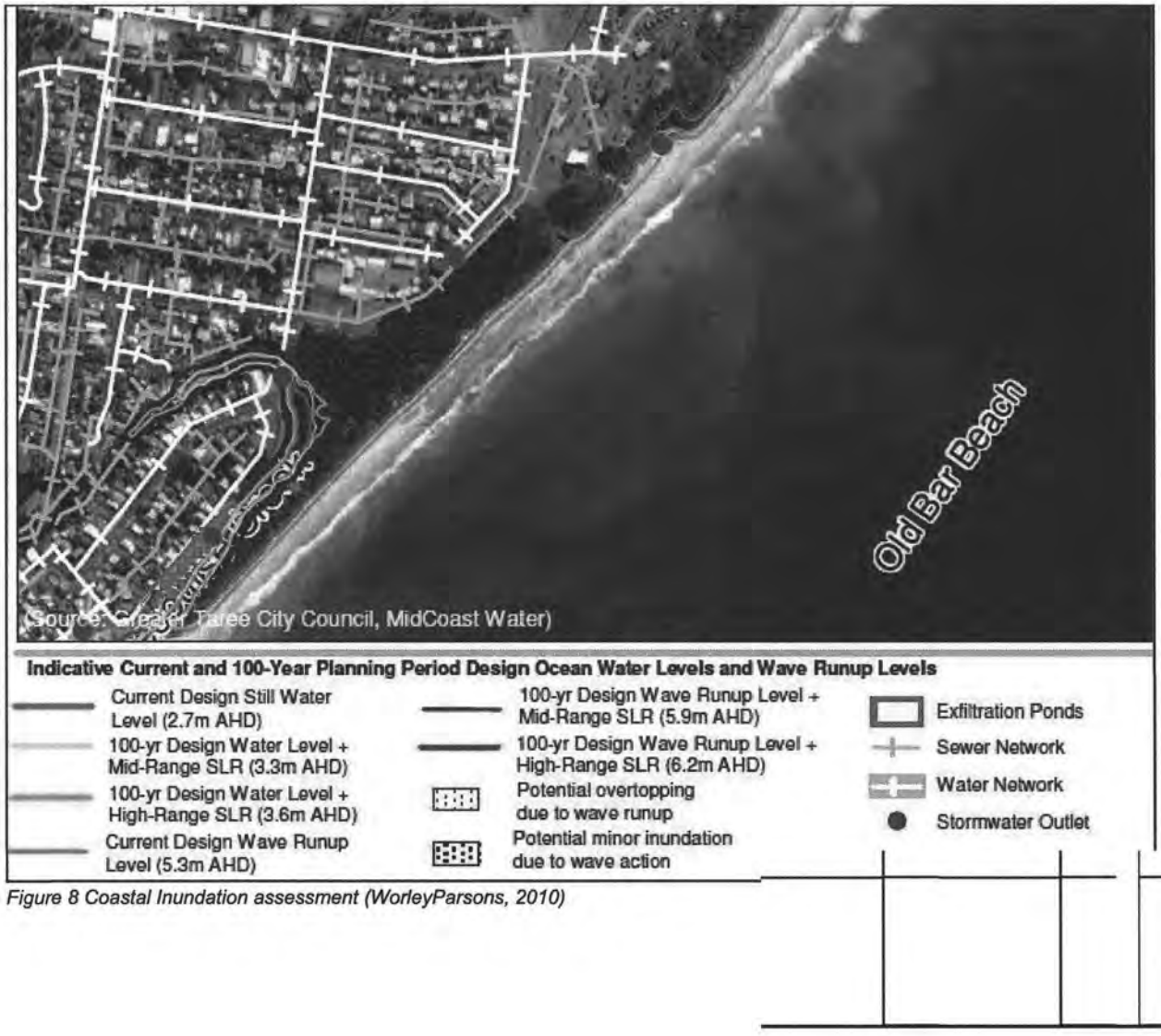

Figure 8 Coastal Inundation assessment (WorleyParsons, 2010)

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7.0 Rock Revetment Option

The community at Old Bar is not supportive of planned retreat, GTCC's default policy stance given the non-affordability or availability of any other option. There is concern that it would lead to a reduction in visitors impacting on business activity and property values. It is noteworthy that these impacts would not be limited to the affected coastal strip, but would be felt more broadly within the village.

In light of this, RHDHV was engaged by GTCC to undertake a coastal engineering investigation to recommend a viable long-term coastal protection option (RHDHV, 2013) that would provide protection to property, infrastructure and assets. Alternative coastal protection strategies such as an artificial reef and beach nourishment canvassed in earlier investigations were assessed but not supported (further details of this assessment are outlined in (RHDHV, 2014).

A staged rock revetment preliminary design has been proposed. The preliminary design general arrangement for the 3 stage Old Bar Beach coastal protection structure is depicted in summary in **Figure 9.**

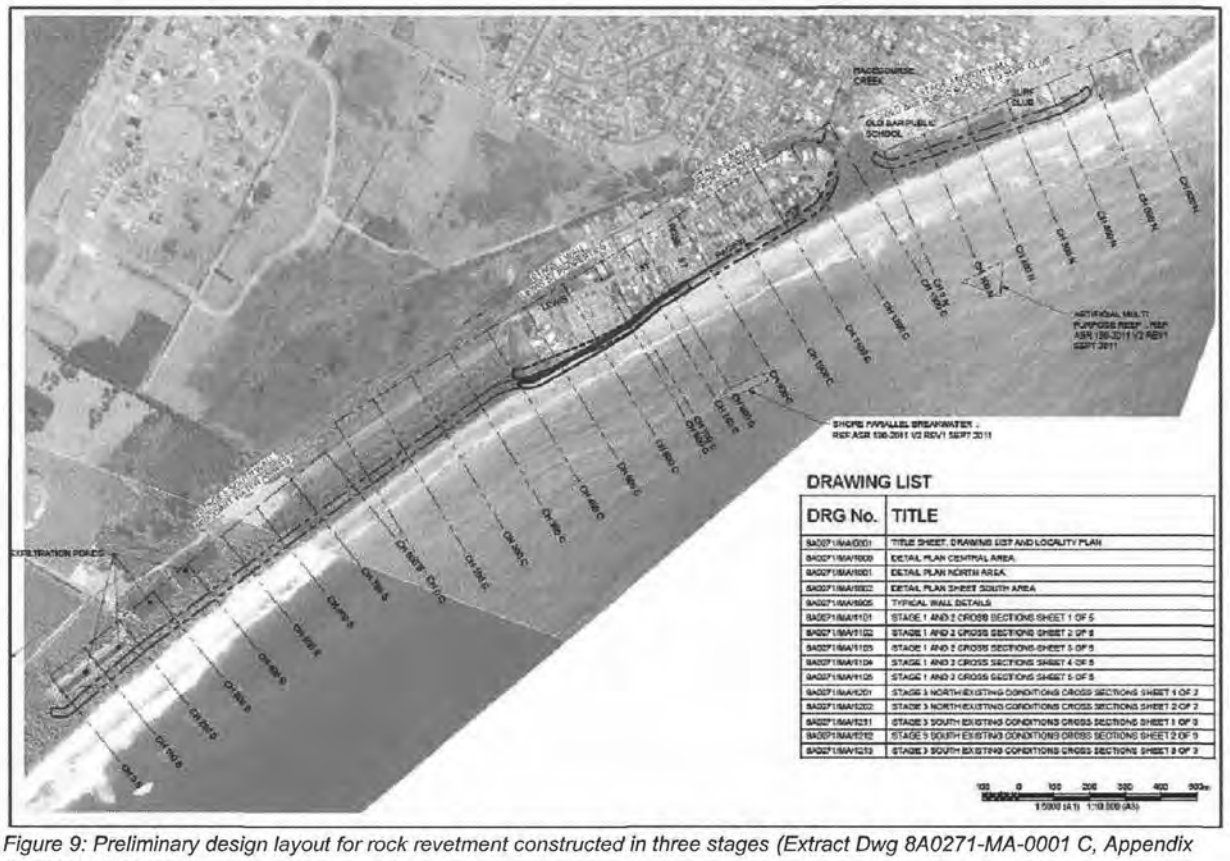

Figure 9: Preliminary design layout for rock revetment constructed in three stages (Extract Dwg 8A0271-MA-0001 C, Appendix D; RHDHV, 2013)

The threat to Lewis Street properties is highest and as such this is included in Stage 1 (solid blue in **Figure 9**), with Stage 2 extended northwest to Pacific Parade (dashed blue). The remainder of the site is denoted as Stage 3 (red) including Old Bar Public School to the SLSC to the north (3N) and the MidCoast Water assets to the south (3S).

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The draft CZMP for Greater Taree originally rejected a revetment at Old Bar on legislative, social, environmental, technical and economic grounds. These various considerations have since been revisited in the light of updated information, a reviewed policy stance on the part of GTCC and prospective Stage 2 reforms to the Coastal Protection Act 1979. As outlined in the Addendum to the CZMP (RHDHV, 2014), GTCC (recently incorporated into MidCoast Council) to accept a rock revetment alternative for managing coastline hazard at Old Bar on all grounds.

7.1 Impact of a future revetment on coastal hazard risk at OBPS

Should the rock revetment be implemented, there could potentially be end effects whereby there is increased erosion and recession at the ends of the structures due to either increased turbulence created by reflected waves off the structure, or a reduction in longshore sediment transport supply to the area due to locking up of sand behind the structure. This issue is discussed in the Addendum to the CZMP (RHDHV, 2014b) with the conclusion that whilst end effects are real and problematic, in the case of Old Bar beach and the OBPS site more specifically, the impact of the end effects are likely to bring forward the the next stage of the revetment project. The preliminary design for the rock revetment addresses the end effects issue through landward returns, continuous alignments and careful attention to staging. The southern end of the Stage 3N revetment can be treated in two ways, either with a return around the south eastern corner of the school, or by extending the structure to overlap the northern end of the Stage 2 revetment (as shown in **Figure 10**).

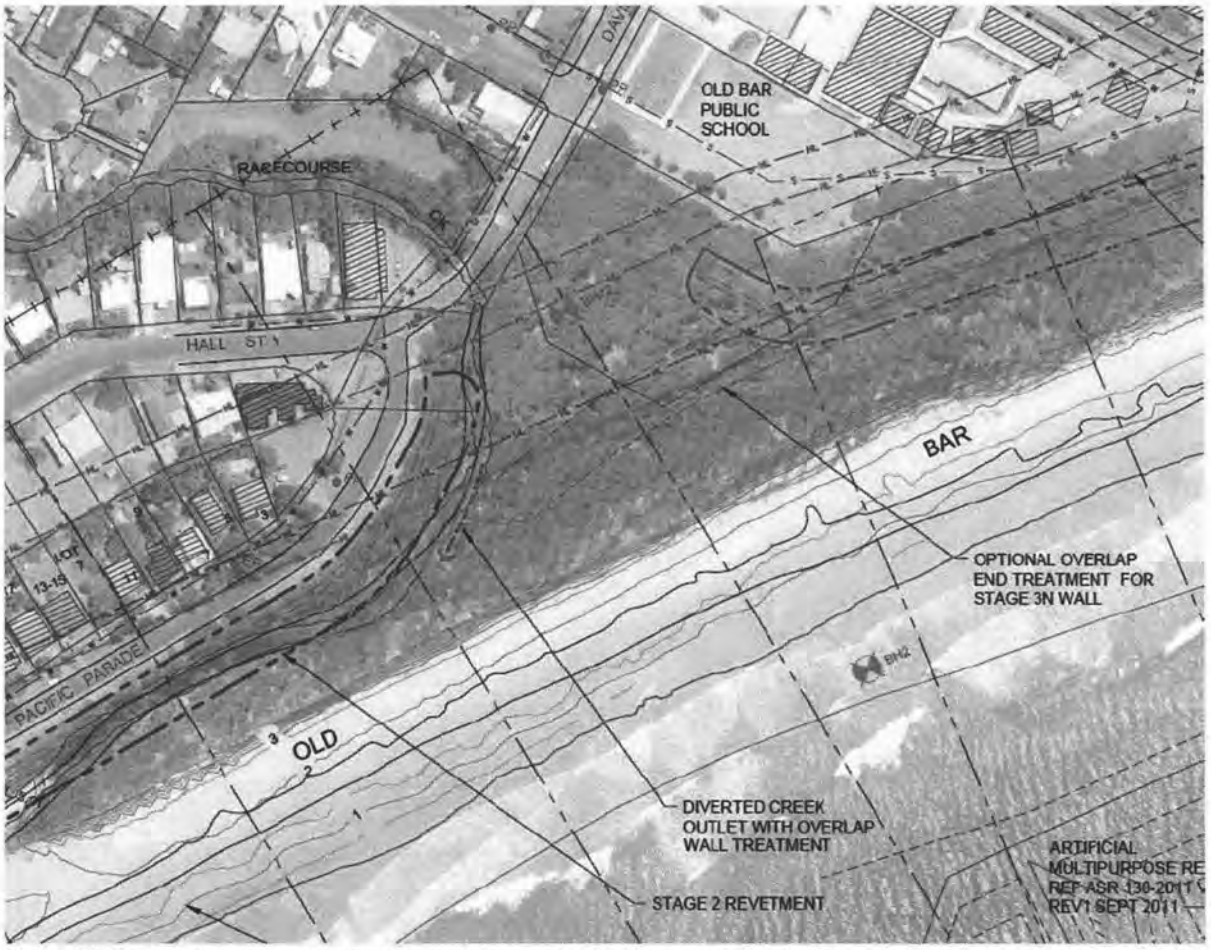

Figure 10: Proposed staged arrangements about the entrance to Racecourse Creek with preliminary revetment design (Extract from Dwg 8A0271-MA-1001B, Appendix F, RDHDV, 2013)

If the revetment were to be completed in its entirety (Stages 1, 2 and 3) this would then provide coastal protection to the OBPS site which would in effect move the line for Conventional Foundations from its current location as shown by the blue line in Figure 7 to the crest of the revetment alignment eliminating the need for piled foundations altogether.

8.0 Risk Management Plan

The Great Taree CZMP, while adopted by Council remains a draft until such time as it is certified by the NSW Minister for the Environment. It is understood that Council will be proceeding with seeking Ministerial approval of the CZMP excluding the Old Bar and Manning beaches which will be dealt with in a separate Coastline Management Program in accordance with the new Coastal Reforms.

In its draft CZMP GTCC has adopted a policy stance of informed adaption for the management of its entire LGA coastline. Informed adaption facilitates a range of flexible responses to the coastline based on the following objectives:

- maximising the beneficial use of the coastal zone for as long as possible;
- a risk based approach to development underpinned by landowners taking responsibility for the success or failure of the works they propose;
- implementation of development controls to ensure that risk and responsibility are transferred to successive owners; and
- capitalising on the opportunities that may present as a result of the Stage 2 Coastal Reforms.

Draft amendments for the Development Control Plan (DCP) for Greater Taree are currently on exhibition (closing 23/6/17). The draft amended Old Bar to Manning Point section of the DCP requires that for all development between the coastal Hazard Line and the Immediate Hazard Line a Risk Management Plan be prepared that demonstrates that the landowner is aware of risks applicable to the land. The Risk Management Plan is to include:

a. An acknowledgment of the risk of developing the area.
b. Details indicating how the identified risks will be managed.
c. If the development is of a scale that has the potential to generate offsite impacts, evidence of how these impacts have been considered and addressed.

These items are dealt with for the proposed development of OBPS in the following sections.

8.1 Acknowledgment of the risk of developing the area

The OBPS site is located between the immediate hazard line and the 2100 Hazard line as shown in the draft amended DCP (Midcoast Council, 2017) and within the 'Piled development' zone as set out in the CZMP Addendum (refer **Figure 7**). This zoning indicates that the site is currently landward of the Zone of Slope Adjustment where the slope could fail from a significant storm event and undermine any structures but is within the Zone of Reduced Foundation Capacity (refer **Figure 5**) for the 100 year planning period as a result of coastal recession. Being within the Zone of Rediuced Foundation Capacity means that a structure on conventional foundations (strip footings/ shallow piers etc) could experience failure of these foundations and subsequent damage to or failure of the building structure.

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8.2 Risk Management Strategy

Although piled foundations would ensure the structure was founded on stable ground, piled foundations are not always considered to be an appropriate general control for new development at Old Bar for the following reasons:

- Erosion of land surrounding piled structures would be expected to impact on the amenity of the lot;
- To be at acceptable risk, piled access to a future redeveloped dwelling would be required if that access point was seaward of the acceptable risk line for development on conventional foundations;
- At most lots this would mean that road access to the property would also need to be piled which is not feasible.

It is noted that in accordance with the cross section of hazard zones as set out in **Figure 5**, piles would need to extend through the zone of reduced foundation capacity and into the stable foundation zone (as far as deemed necessary by the pile designer). The stable foundation zone beneath the proposed development would be below 0m AHD.

GTCC (MidCoast Council) is now also open to the possibility of coastal protection in the form of a staged rock revetment, probably involving some degree of beach nourishment, if this can be appropriately funded.

One option for the management of coastal recession risk for the OBPS site is therefore to construct the new development on conventional foundations with a plan to remove the building once it is within the potential zone of impact of a 100 year ARI storm event. This distance has been estimated in the Coastal Zone Management Plan to be 25m for this frontage based on a 7-10m typical dune crest height. This is deemed an appropriate estimate for the Old Bar Public school site where the dune crest height is approx.8m. The dune width in front of the eastern boundary of the OBPS site is approx. 60m leaving 35m for recession before the trigger width of 25m is reached. At the estimated recession rate of 0.8m (for 'best estimate'- refer Table 2 Key parameters for the likelihood of coastline recession**Table 2**), this would be a period of over 43 years. It is noted that the new development proposed is located further landward than the eastern boundary with a dune width of approx. 125m (or 100m to the 25m trigger distance). This then translates to 100 years of recession at the 'best estimate' rate of 0.8m/year before the development structure would need to be removed. It is noted that in this time, many other assets would have been threatened such as Lewis Street and Pacific Pde properties creating more incentive for coastal protection to be implemented.

RHDHV would therefore accept for the OBPS development either piled foundations or conventional foundations inclusive of the above informed adaption strategy.

In terms of risk management of threats to life the Greater Taree Coast Emergency Action Plan (EAP) provides the details of risk management procedures in the event that a major storm occurs before development and structures at immediate risk can be removed or relocated. As noted in the Addendum to the CZMP (RHDHV, 2014b) in a coastal beach context, risk to life is considered to be acceptably low for various reasons including good foreknowledge with tides and coastal storms, high visibility of advancing erosion risk, and role of the State Emergency Service (SES) to warn and evacuate residents. As such this Risk Management Plan deals only with risk to property.

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8.3 Offsite Impacts

The location and scale of the development proposed is not likely to generate any offsite impacts.

We trust this satisfies your current requirements. If you have any queries please contact the undersigned on 4926 9500.

Natalie Patterson
Senior Coastal Engineer
Maritime & Aviation

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BARKER RYAN STEWART
TOTAL PROJECT SOLUTIONS

PLANNING
PROJECT MANAGEMENT
ENGINEERING
CERTIFICATION

CONRAD GARGETT | ANCHER MORTLOCK WOOLLEY

Statement of Environmental Effects

Proposed Alterations and Additions to Old Bar Public School

22 David Street, Old Bar

CC160173

February 2018

Project No.	CC160173
Author	DF
Checked	LW
Approved	LW

Rev No.	Status	Date	Comments
1	Final	31/08/2017	DA submission
2	Updated	23/02/2018	Updated submission

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APPENDICES

Appendix A – Architectural Plans
Appendix B – Landscape Plans
Appendix C – Geotech Report
Appendix D – Engineering Plans
Appendix E – Bush Fire Assessment Report
Appendix F – AHIMS Search
Appendix G – BCA Compliance Report
Appendix H – Survey Plan
Appendix I – Coastal Zone Risk Management Plan
Appendix J – Clause 4.6 Submission
Appendix K – Traffic Impact Assessment

1 Introduction

This report has been prepared on behalf of Conrad Gargett and the NSW Department of Education.

This application seeks development consent for alterations and additions to the existing Old Bar Public School.

A detailed description of the proposal is provided at Section 3.0.

Development plans are included in the appendix to this report.

It should be noted that the site now falls within MidCoast Council Local Government Area, however the Greater Taree Council Planning controls are still applicable.

This report has determined that the proposal is compliant with relevant State and the various Greater Taree Council Planning Instruments.

2 Site Analysis

2.1 Site Description

The site is located at 22 David Street, Old Bar and comprises of four lots. The real property description of the lots is lots 204, 222, and 239 DP 753149, with a total area of approximately 17,470m^2 (1.75 ha).

The site has frontage to Smith Street (north) and David Street (west) and is located within a residential / environmental area as shown in Figure 1 below.

Figure 1: Aerial Photo of Site

Old Bar Public School currently caters for approximately 470 children and associated staff. The school buildings and associated car parking, open space/landscaping and facilities are located on lots 204, 222 and 239 DP 753149. The boundary of these allotments forms the fenced perimeter of the school.

2.2 The Locality

Old Bar is a coastal town located at the mouth of the Manning River, approximately 16 kilometres east of Taree and around 315 kilometres north of Sydney.

The locality of Old Bar is characterised by a mix of residential, recreation, environmental, tourism and commercial developments. As shown in Figure 2, developments and the land surrounding the subject site, include the following:

- North: low density residential development

- East: An environmental conservation zone comprising Old Bar Park and the Pacific Ocean foreshore. Medium and low density residential developments, public recreation zone and foreshore;
- South: An environmental conservation zone comprising Old Bar Park and the Pacific Ocean foreshore; and
- West: low density residential developments.

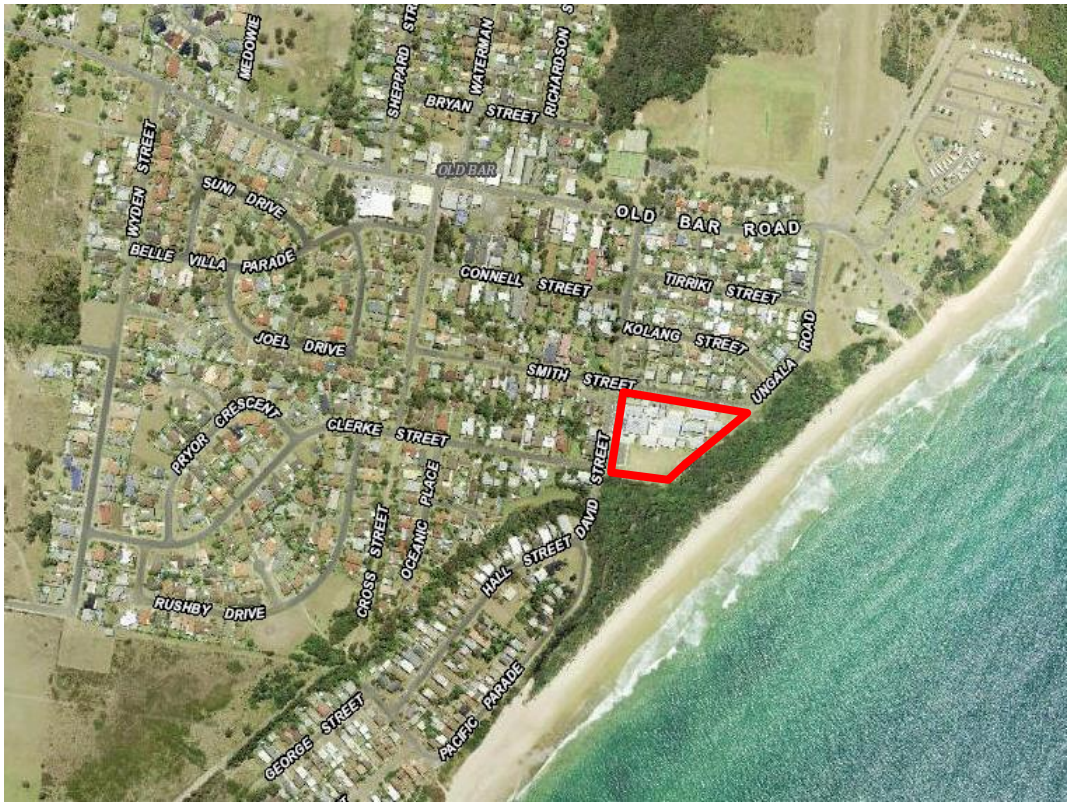

Figure 2: Aerial Photo of Locality

2.3 Infrastructure

The site is serviced by water, sewer, telecommunication and power services.

Nearby public transport includes a bus line along Old Bar Road about 300m from the site, over and above school bus services.

2.4 Photographs

The following are photographs of the school and surrounds.

Photo 1: General view of school

Photo 2: Rear view of demountables to be removed

Photo 3: Internal view of demountables to be removed

Photo 4: View from school to new building location on existing basketball court

Photo 5: View from car park, looking south, to new building location on existing basketball court

3 Proposal in Detail

3.1 Demolition

The proposed alterations and additions to Old Bar Public School will involve the following removal / demolition works:

- Removal of 7 demountable buildings located on the southern side of the permanent school buildings; and
- Removal of the existing open sports court located in the southwest corner of the site adjacent to David Street.

Refer to Figure 3 and Appendix A for details.

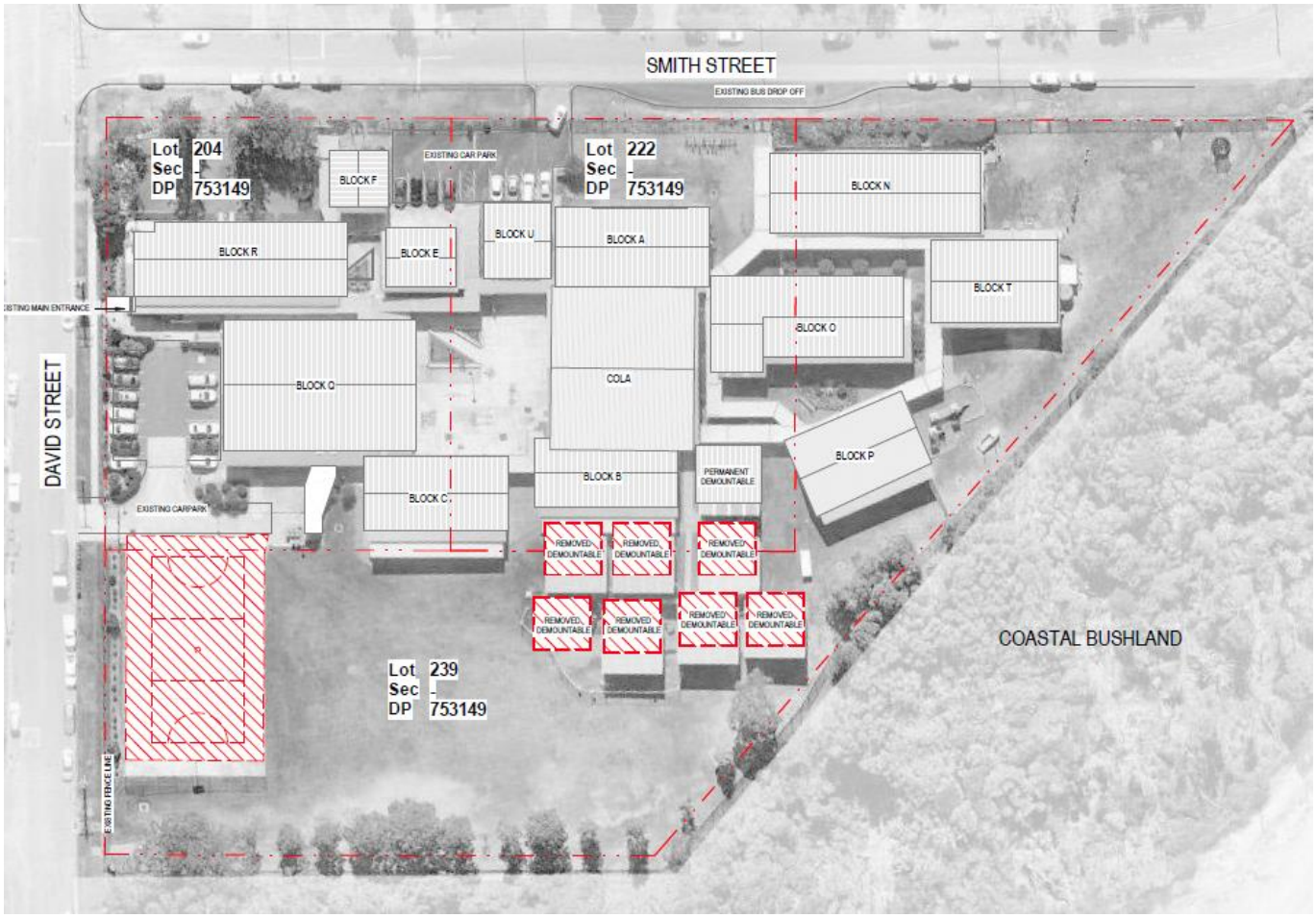

Figure 3: Extract from Demolition Plan

Where possible, materials will be salvaged for recycling and reuse during the demolition process. The remaining waste will be transported to a recognised waste facility.

3.2 Proposed Development

The proposed development involves alterations and additions to Old Bar Public School and seeks development consent to replace 7 demountable buildings with a permanent two storey building containing 7 classrooms and common learning areas on both levels.

Ground Floor:

- Three classrooms and open common area;
- Toilet facilities;
- Plant room; and
- Stair and lift access.

First Floor:

- Four classrooms and open common area;
- Toilet facility;
- Communications room;
- Cleaners store; and
- Stair and lift access.

The development will not result in an increase in student or staff numbers.

The two storey education facility will be constructed on the site of the current sports court (shown in the photos 4 and 5 above) and Figure 4 below shows the location of the proposed changes on the site plan extract.

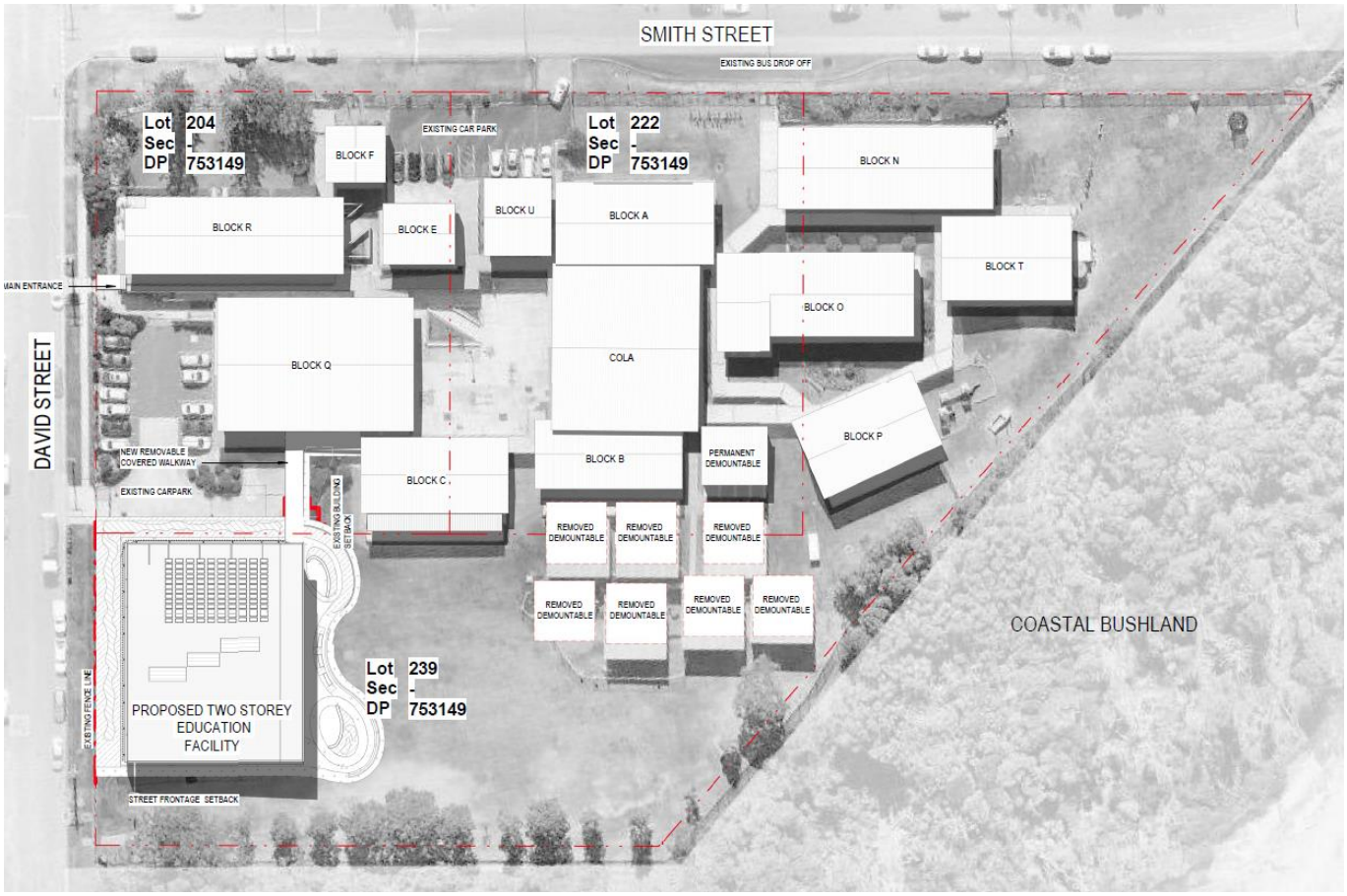

Figure 4: Showing the location of the new two storey building and the demountables to be removed.

Figure 6 and 7 below show the ground and first floor plans of the proposed building. Detailed plans are included in Appendix A.

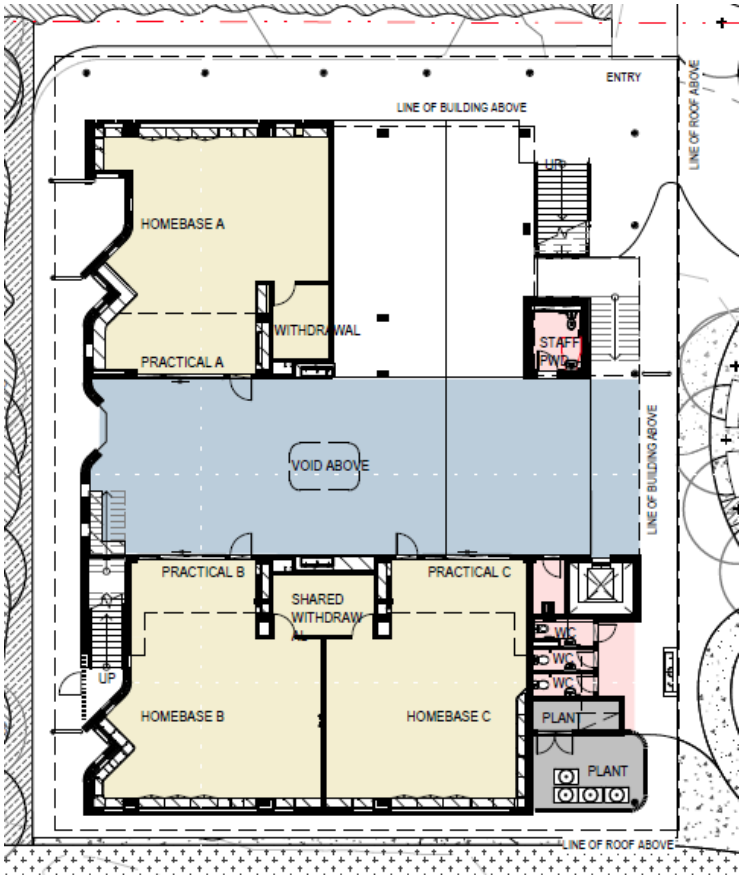

Figure 5: Proposed ground floor plan extract

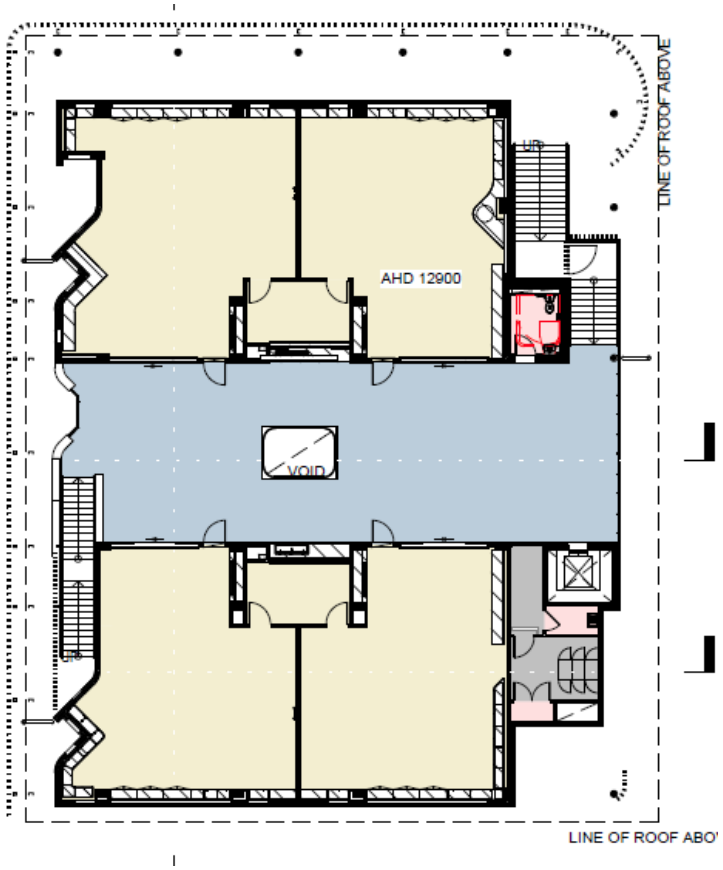

Figure 6: Proposed first floor plan extract

Figure 7 shows a 3D view of the proposed building as can be seen from David Street looking north west. The light weight construction fits with the coastal location.

Figure 7: View of proposed building from David Street

4 Statutory Matters

4.1 State Environmental Planning Policies (SEPPs)

State Environmental Planning Policy No 14 (Coastal Wetlands)

The site includes a buffer area to the west, being 100m from SEPP 14 wetland areas. The proposed alterations and additions to Old Bar Public School will relocate demountables from the western portion of the site and will not have any adverse impacts on the coastal wetland areas, as defined in SEPP 14. Appropriate stormwater devices will ensure runoff is not directed towards the wetland areas.

State Environmental Planning Policy No 26 – Littoral Rainforests

The aim of this Policy is to provide a mechanism for the consideration of applications for development that is likely to damage or destroy littoral rainforest areas with a view to the preservation of those areas in their natural state.

The site adjoins a small area of littoral rainforest as shown in Figure 8 below and the site is shown within the buffer area. However, Clause 4 of the SEPP states the following:

(1) This Policy applies to:
- *(a) land enclosed by the outer edge of the heavy black line on the series of maps held in the Department and marked "State Environmental Planning Policy No 26—Littoral Rainforests (Amendment No 2)", and*
- *(b) land not so enclosed but within a distance of 100 metres from the outer edge of that heavy black line except residential land and land to which State Environmental Planning Policy No 14—Coastal Wetlands applies.*

The site is within 100m under 1(b) however it is exempted as it is residential land (currently zoned and zoned village under previous planning instruments.

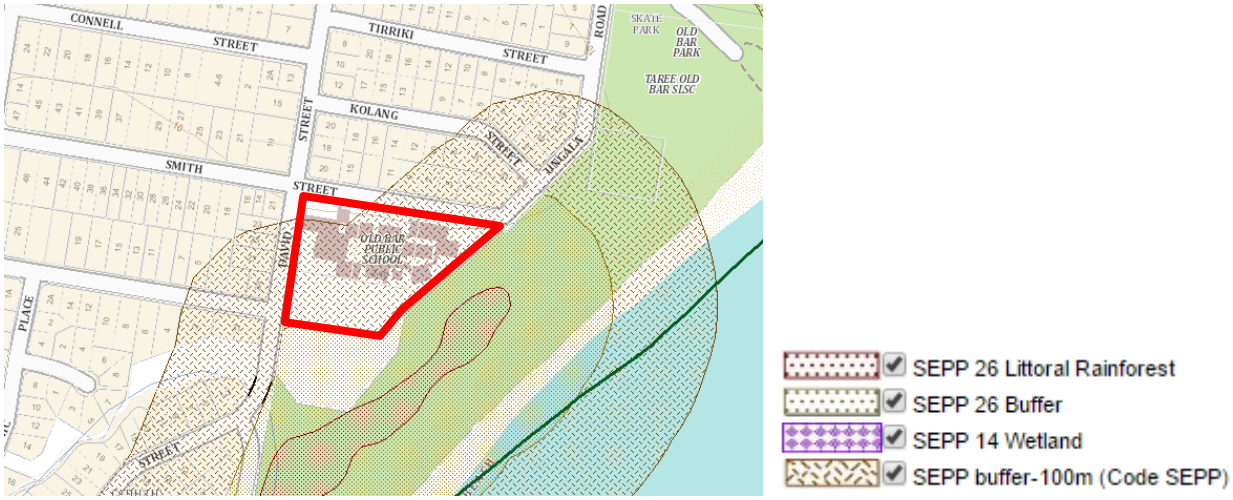

Figure 8: Extract from SEPP 26 mapping

State Environmental Planning Policy No 44 – Koala Habitat Protection

This Policy aims to encourage the proper conservation and management of areas of natural vegetation that provide habitat for koalas to ensure a permanent free-living population over their present range and reverse the current trend of koala population decline:

- *(a) by requiring the preparation of plans of management before development consent can be granted in relation to areas of core koala habitat, and*
- *(b) by encouraging the identification of areas of core koala habitat, and*

(c) by encouraging the inclusion of areas of core koala habitat in environment protection zones.

The Policy applies to land within the Greater Taree LGA, which includes the subject site.

The Policy requires that Council must satisfy itself whether or not the land the subject of the development application is a potential koala habitat.

Neither the site nor adjoining land is subject to a Koala Plan of Management under the SEPP.

The proposed two storey education facility is to be constructed on the site of the current sports court and therefore does not result in the loss of any trees within the school grounds. The fenced school grounds, comprising lots 204, 222, 239 in DP 753149, is not core koala habitat and does not contain potential koala habitat.

There is some land directly to the south of the site which contains littoral rainforest and is zoned E2 Environmental Conservation, however this land will not be affected by the proposed development.

State Environmental Planning Policy No 55 – Remediation of Land

Clause 7 of State Environmental Planning Policy No.55 – Remediation of Land requires the consent authority to consider whether land is contaminated during the development application process.

The site has been used continuously as a school since it was opened at the current location in 1935. We have not been advised by the client of any potential site contamination that would restrict the continued use of the site for a school.

State Environmental Planning Policy No 71 – Coastal Protection

The aims of SEPP 71 are:

(a) to protect and manage the natural, cultural, recreational and economic attributes of the New South Wales coast, and

(b) to protect and improve existing public access to and along coastal foreshores to the extent that this is compatible with the natural attributes of the coastal foreshore, and

(c) to ensure that new opportunities for public access to and along coastal foreshores are identified and realised to the extent that this is compatible with the natural attributes of the coastal foreshore, and

(d) to protect and preserve Aboriginal cultural heritage, and Aboriginal places, values, customs, beliefs and traditional knowledge, and

(e) to ensure that the visual amenity of the coast is protected, and

(f) to protect and preserve beach environments and beach amenity, and

(g) to protect and preserve native coastal vegetation, and

(h) to protect and preserve the marine environment of New South Wales, and

(i) to protect and preserve rock platforms, and

(j) to manage the coastal zone in accordance with the principles of ecologically sustainable development (within the meaning of section 6 (2) of the Protection of the Environment Administration Act 1991*), and*

(k) to ensure that the type, bulk, scale and size of development is appropriate for the location and protects and improves the natural scenic quality of the surrounding area, and

(l) to encourage a strategic approach to coastal management.

SEPP 71 affects the site because the site is located within the "coastal zone" as defined in the Coastal Protection Act 1979.

The proposed development is entirely consistent with the aims of SEPP 71. In particular, the development will maintain the visual amenity of the coastal area and will not adversely impact on any beach environment or native coastal vegetation.

The table below confirms that the proposal is consistent with the provisions of Clause 8 'Matters for Consideration'.

Table 1: SEPP 71 Matters for Consideration

CLAUSE 8 REQUIREMENTS	COMMENTS
(a) the aims of this Policy set out in clause 2	Refer above.
(b) existing public access to and along the coastal foreshore for pedestrians or persons with a disability should be retained and, where possible, public access to and along the coastal foreshore for pedestrians or persons with a disability should be improved	Nil impact.
(c) opportunities to provide new public access to and along the coastal foreshore for pedestrians or persons with a disability	Nil impact.
(d) the suitability of development given its type, location and design and its relationship with the surrounding area	The proposal is entirely consistent with the locality and will not alter the relationship of the site with surrounding land.
(e) any detrimental impact that development may have on the amenity of the coastal foreshore, including any significant overshadowing of the coastal foreshore and any significant loss of views from a public place to the coastal foreshore	Nil impact.
(f) the scenic qualities of the New South Wales coast, and means to protect and improve these qualities	The proposal will maintain the scenic qualities of the locality and the NSW coast. While the proposed development will not significant alter the current use of the site, it would increase the scenic qualities from the resulting high quality development.
(g) measures to conserve animals (within the meaning of the Threatened Species Conservation Act 1995*) and plants (within the meaning of that Act), and their habitats*	The proposal will not adversely impact on threatened species.
(h) measures to conserve fish (within the meaning of Part 7A of the Fisheries Management Act 1994*) and marine vegetation, and their habitats*	Nil impact.
(i) existing wildlife corridors and the impact of development on these corridors	Nil impact.
(j) the likely impact of coastal processes and coastal hazards on development and any likely impacts of development on coastal processes and coastal hazards	Nil impact.
(k) measures to reduce the potential for conflict between land-based and water-based coastal activities	Nil impact.
(l) measures to protect the cultural places, values, customs, beliefs and traditional knowledge of Aboriginals	There are no known Aboriginal archaeological relics on the site.
(m) likely impacts of development on the water quality of	Appropriate water quantity and quality measures will be implemented in

CLAUSE 8 REQUIREMENTS	COMMENTS
coastal waterbodies	accordance with the submitted engineering plans to maintain water quality of coastal waterbodies.
(n) the conservation and preservation of items of heritage, archaeological or historic significance	There are no known heritage or archaeological items that would be affected by the proposal.
(o) only in cases in which a council prepares a draft local environmental plan that applies to land to which this Policy applies, the means to encourage compact towns and cities	N/A
(p) only in cases in which a development application in relation to proposed development is determined	Noted.
(i) the cumulative impacts of the proposed development on the environment	The proposed development will not result in any cumulative environmental impacts, as the current use will continue on the site.
(ii) measures to ensure that water and energy usage by the proposed development is efficient	Water saving and energy saving devices will be installed. Full details can be provided at the CC stage.

State Environmental Planning Policy (Infrastructure) 2007

State Environmental Planning Policy (Infrastructure) 2007 applies to the subject site. Table 2 below sets out compliance with relevant sections

Table 2: State Environmental Planning Policy (Infrastructure) 2007

SEPP REQUIREMENT	COMMENT
PART 1 PRELIMINARY	
Sections 1-12	Noted
PART 2 GENERAL	
Divisions 1 - 5	Not applicable.
PART 3 DEVELOPMENT CONTROLS	
Divisions 1-2	Not applicable.
Division 3 – Educational Establishments	
27 Definitions	The site is zoned R1 General Residential, which is identified as a prescribed zone within the definitions.
28 Development permitted with consent	Educational establishments and alterations and additions are permissible with consent in any prescribed zone (including R1). Should the local environmental plan (LEP) prohibit educational establishments, then the SEPP will over-ride the LEP.
29 Development permitted without consent	The proposal does not comply with these provisions, therefore needs development consent.
30 Notification of carrying out of certain development without consent	Not applicable.
31 Exempt development	The proposal is not considered to be exempt development.

31A Complying development certificates – existing schools and TAFE establishments	Not applicable, the site is bush fire prone and therefore cannot be considered as complying development.
31B (Repealed)	
31C Complying development certificates – additional conditions	Not applicable.
32 Determination of development applications	This section sets out matters to be taken into consideration before determination of the application. The School Facilities Standards prevail in the event of any inconsistency between those standards and Council's DCP.
Divisions 4-26	Not Applicable.

Draft State Environmental Planning Policy (Education and Child Care)

The NSW government is proposing to introduce a new education-based State Environmental Planning Policy. The Draft SEPP (Education and Child Care) aims to streamline and simplify the planning system for education facilities in New South Wales.

The reforms outlined in the SEPP will allow schools to more readily implement improvements, upgrades and expansions. The proposed development has regard for the objectives, stands and guidelines set out in the draft SEPP.

Under the provisions of the Draft SEPP, the two storey building would require development consent.

Draft State Environmental Planning Policy (Coastal Management) 2016

This draft SEPP is proposing to replace SEPP Nos 14, 26 and 71 and includes accompanying mapping and provisions.

The whole of the school site is within the 'coastal use' area. The proposed new building works are located only within the coastal use area.

The coastal use area is land adjacent to coastal waters, estuaries, coastal lakes and coastal lagoons, where impacts of development on the use and enjoyment of the beaches, foreshores, dunes, estuaries, lakes and the ocean needs to be considered. The objectives for the coastal use area include:

- Having appropriate type, bilk, size and scale of development for the coast;
- Providing adequate public open space and associated public infrastructure; and
- Avoiding adverse impacts of development on cultural and built environment heritage.

Table 3 below addresses the applicable draft provisions of this plan, which shows that there will not be any adverse impacts from the proposed development on the coastal zone or relevant areas.

Table 3: Draft SEPP (Coastal Management) Matters for Consideration

SEPP REQUIREMENT	COMMENT
DIVISION 1 Coastal Wetlands and littoral rainforests area	Not applicable, no areas affected by the proposal are identified as proximity areas for Coastal Wetlands or Littoral Rainforests.
DIVISION 4 Coastal Use Area	
15 Development on land within the coastal use area	
Development consent must not be granted to development on land that is wholly or partly within the coastal use area unless the consent authority:	
(a) is satisfied that the proposed development:	

SEPP REQUIREMENT	COMMENT
(i) if near a foreshore, beach, headland or rock platform—maintains or, where practicable, improves existing, safe public access to and along the foreshore, beach, headland or rock platform, and	Nil impact.
(ii) minimises overshadowing, wind funnelling and the loss of views from public places to foreshores, and	Nil impact.
(iii) will not adversely impact on the visual amenity and scenic qualities of the coast, including coastal headlands, and	Nil impact – building has been designed to work with the existing buildings on the site.
(iv) will not adversely impact on Aboriginal cultural heritage and places, and	Nil impact. The site is already disturbed and there are no known Aboriginal sites on the site or within the vicinity of the site according to the AHIMS search included in Appendix F.
(v) will not adversely impact on use of the surf zone, and	Nil impact – not located near this area.
(b) has taken into account the type and location of the proposed development, and the bulk, scale and size of the proposed development.	The proposed development has been located close to existing buildings and distant from the nearby waterway and associated vegetation. The building is low scale and similar to the existing development on the site and within the local area.
DIVISION 5 General	
16 Development in coastal zone generally — development not to increase risk of coastal hazards	No additional hazards will be created by the proposed development.
17 Development in coastal zone generally — coastal management programs to be considered	Noted.
18 Other development controls not affected	noted
19 Hierarchy of development controls if overlapping	Noted
20 References to equivalent land use zones	Noted

4.2 Regional Strategies

The subject land is included in the Hunter Regional Plan 0236 as a 'centre' as shown in Figure 12 below.

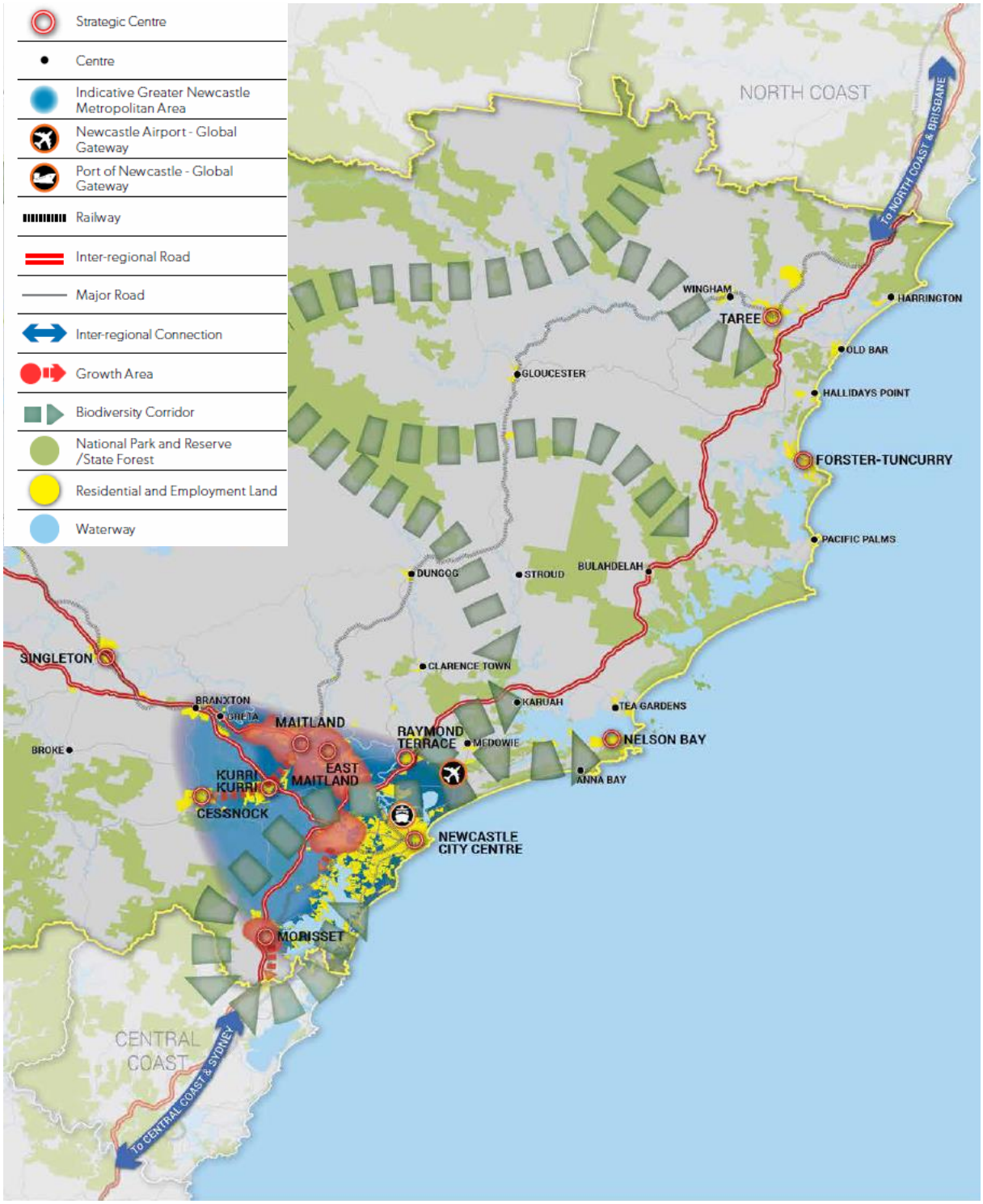

Figure 9: Extract Hunter Regional Plan 2036

The proposed redevelopment of the site is consistent with the goals, directions and actions detailed for consideration in the Hunter Regional Plan. The relevant matters are outlined in Table 4 below.

Table 4: Assessment of Hunter Regional Plan

MATTERS FOR CONSIDERATION	ASSESSMENT
Goal 1: The leading regional economy in Australia	
Directions 1 – 13	Not Applicable.
Goal 2 – A biodiversity-rich natural environment	
Direction 16: Increase resilience to hazards and climate change Actions 16.1 Manage the risks of climate change and improve the region's resilience to flooding, sea level rise, bushfire, mine subsidence, and land contamination. 16.2 Review and consistently update floodplain risk and coastal zone management plans, particularly where urban growth is being investigated.	The proposal has considered climate change and natural hazards. A bushfire report is included in Appendix E. The proposed school building is included within the existing school boundary and it is unlikely it will have any adverse impacts on the management of the coastal zone.
Directions 14 – 15	Not Applicable.
Goal 3: Thriving communities	
Direction 17: Create healthy built environments through good design	The proposal will provide a vibrant and high-quality educational environment that will complement and strengthen the community of Old Bar. The proposed development will provide architecturally designed classrooms and facilities promoting a vibrant and high-quality educational environment.
Direction 20: Revitalise existing communities	The proposed development will deliver infrastructure and facilities that assist with retaining and attracting staff. The proposed development will also provide local employment during the construction stage.
Directions 18 – 19	Not Applicable.
Goal 4: Greater housing choice and jobs	
Direction 26: Deliver infrastructure to support growth and communities	The proposed architecturally designed classrooms and facilities will promote a vibrant and high-quality educational environment, enhancing the social infrastructure of the Old Bar community.
Directions 21 – 25 & 27	Not Applicable.
Goal 4: Great housing choice and lifestyle options	
Directions 22 – 25	Not Applicable.

4.3 Local Environmental Plans

Greater Taree Local Environmental Plan (LEP) 2010

The Old Bar public school buildings and associated car parking, open space/landscaping and facilities are located on lots 204, 222 and 239 DP 753149. These lots are zoned R1 General Residential under the provisions of the Greater Taree LEP 2010 as shown in Figure 10.

The objectives of R1 zone are:

- *To provide for the housing needs of the community.*
- *To provide for a variety of housing types and densities.*

- *To enable other land uses that provide facilities or services to meet the day to day needs of residents.*

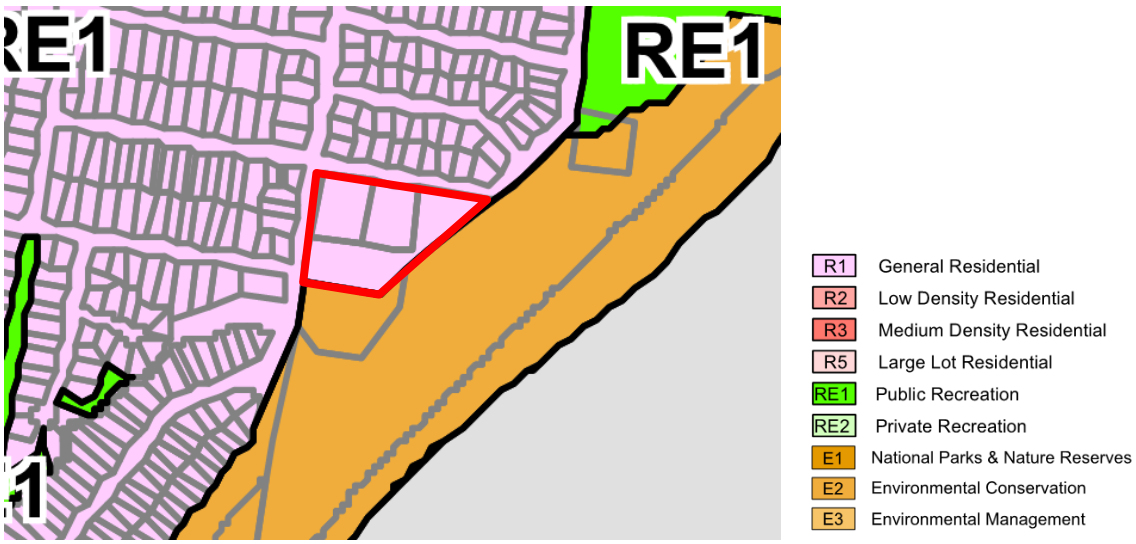

Figure 10: Extract from land zoning map

An 'educational establishment', the definition of which includes a school, is permissible with consent in the R1 General Residential zone. The proposed development can be defined as an addition to the existing Old Bar Public School (educational establishment) and is therefore permissible with consent.

The proposal is considered to be consistent with the zone objectives for the following reasons:

- The extension to Old Bar PS provides services to meet the day to day needs of the local community;
- The development is a significant opportunity to future proof Old Bar Public School and deliver a high-quality education establishment that meets the needs of the local community; and
- The development does not impact upon the land zoned for environmental conservation.

It should be noted that the SEPP (Infrastructure) 2007 outlined in Section 4.1 above, can override the permissibility of the LEP and zoning provisions, if required. In this case an educational establishment is permissible with consent.

Other Relevant Clauses:

Clause 4.3 Height of Buildings

This clause identifies maximum building heights in conjunction with the building height map, an extract of which is shown in Figure 11 below. Figure 11 shows that the maximum building height for this site is 8.5m.

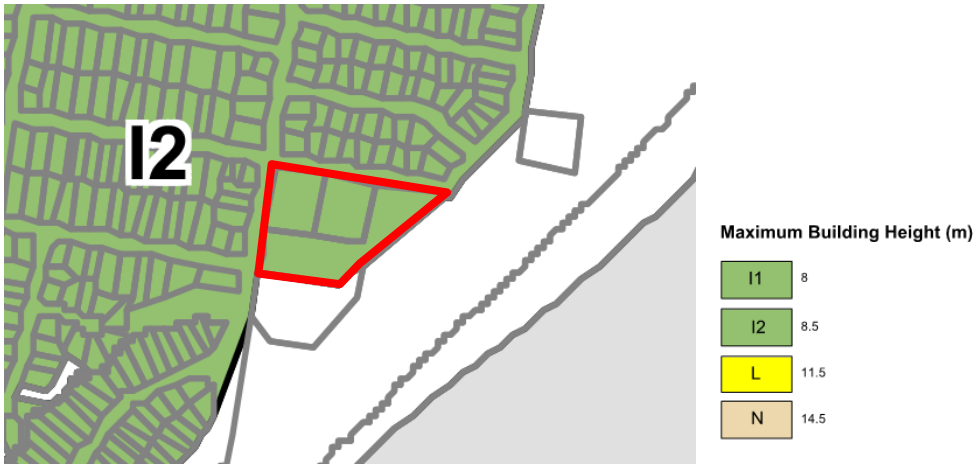

Figure 11: Extract from Height of Building Map.

The proposed development has a height of 10.4 metres, which does not compy with the maximum building height detailed above.

A submission in accordance with Clause 4.6, justifying the variation to the height limit has been prepared and is included in Appendix J.

Clause 4.4 Floor Space ratio

This clause identifies maximum floor space ratio in conjunction with the floor space ratio map, an extract of which is shown in Figure 12 below. Figure 12 shows that the minimum Floor Space Ratio is identified as 0.6:1 for R1 zone.

The proposed development has an approximate FSR of 0.2:1, which complies with the maximum FSR limit detailed below.

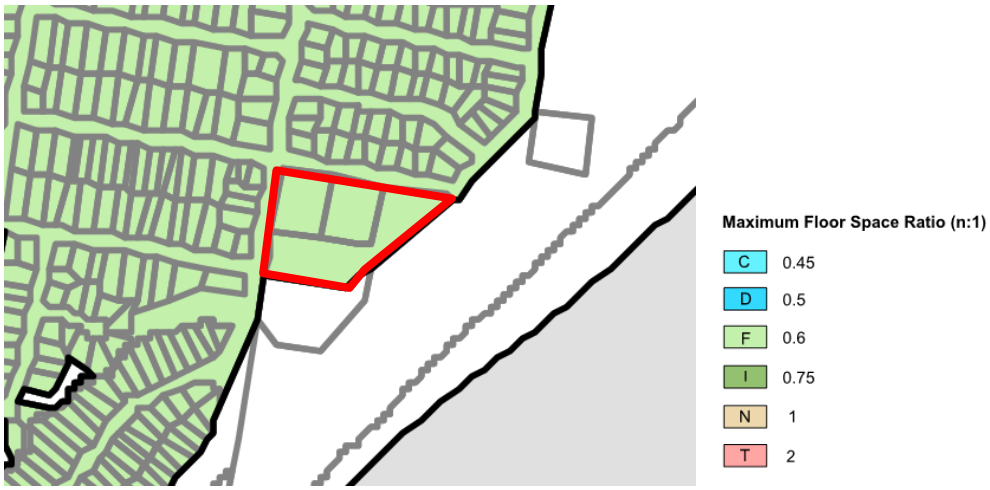

Figure 12: Extract from Floor Space Ratio Map

Clause 5.5 Development within the Coastal Zone

The site is located within the coastal zone and the proposed development is consistent with the clause and the provisions of the draft and current SEPP relating to coastal protection as detailed above in Section 4.2.

It should be noted that the property also falls within a Coastal Hazard Risk Zone as shown in Figure 13.

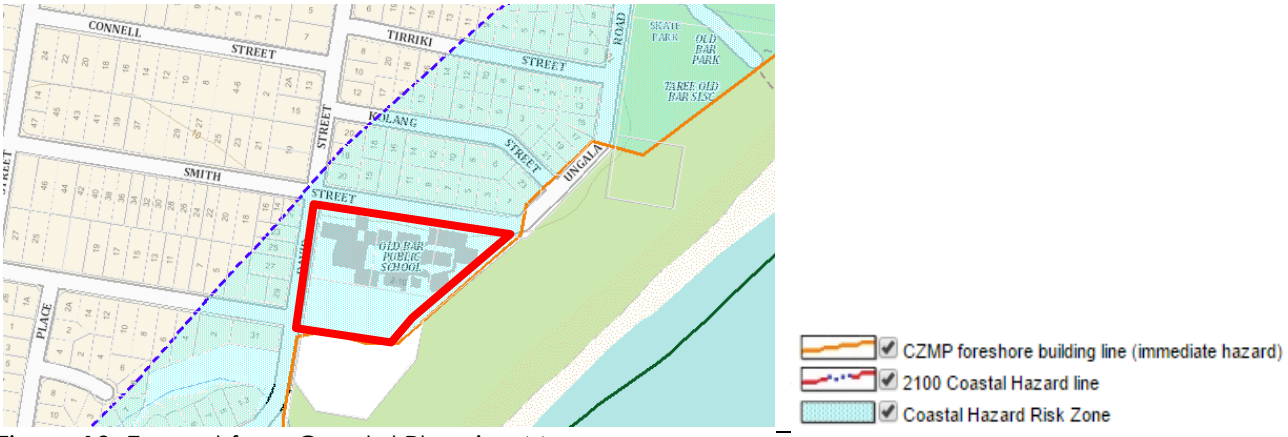

Figure 13: Excerpt from Coastal Planning Map

In response to this issue a coastal hazard risk assessment has been prepared and is included in Appendix I.

Clause 5.9 Preservation of trees or vegetation

The objective of this clause is to preserve the amenity of the area, including biodiversity values, through the preservation of trees and other vegetation.

No trees or vegetation will be removed for the construction of the new building. Additional landscaping will be undertaken as shown in the Landscape Plan included in Appendix B.

Clause 5.10 Heritage Conservation

The objectives of this clause are as follows:

(a) *to conserve the environmental heritage of Greater Taree City,*
(b) *to conserve the heritage significance of heritage items and heritage conservation areas, including associated fabric, settings and views,*
(c) *to conserve archaeological sites,*
(d) *to conserve Aboriginal objects and Aboriginal places of heritage significance.*

There are no heritage items located on the site as shown in Figure 14 below. It does however show heritage item I302 located southwest of site and heritage item I46 is located northeast of site.

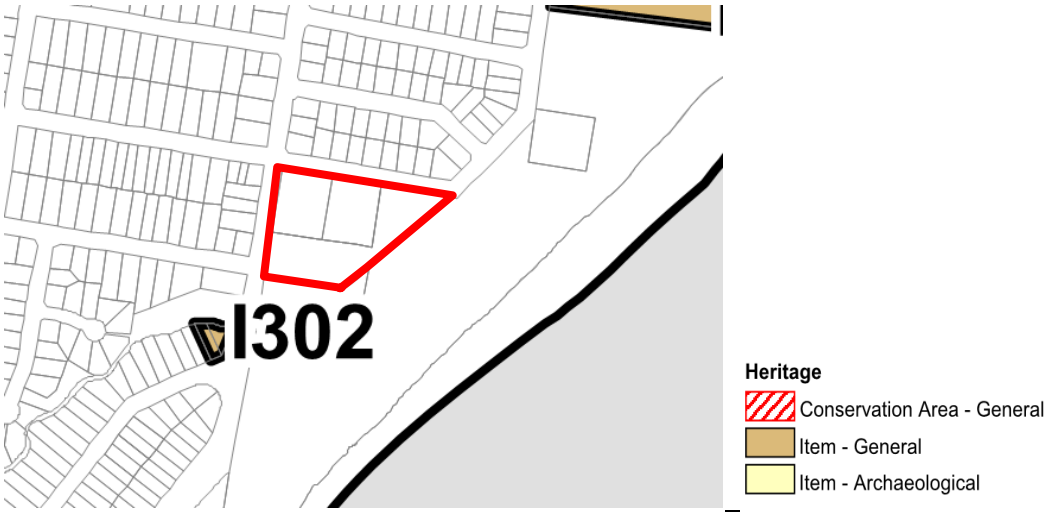

Figure 14: Extract from LEP Heritage Map

Heritage item I302, Soldiers Memorial Hall, is an item of local significance. The building and its curtilage are not impacted upon by the proposed development with the site of the proposed two storey school building approximately 115 metres to northwest.

Heritage item I46, Old Bar Airfield, is an item of state significance and has national historic significance as a rare intact and representative example of a key `aerodrome' from the earliest days of Australian aviation. The site of the proposed school building is approximately 420 metres to the southeast of I46. There is no line of sight and the proposal cannot reasonably be considered to have any impact upon the heritage significance of Old Bar Airfield.

An AHIMS search revealed that no Aboriginal sites are recorded in or near the above location and no Aboriginal places have been declared in or near the above location.

Clause 7.1 Acid Sulfate Soils

This clause and associated mapping has identified Class 4 and Class 5 acid sulfate soils on the subject site. All existing buildings are confined to land identified as Class 5, as shown in Figure 15. Applicable works within Class 5 acid sulfate soil is defined as:

> *Works within 500 metres of adjacent Class 1, 2, 3 or 4 land that is below 5 metres Australian Height Datum and by which the watertable is likely to be lowered below 1 metre Australian Height Datum on adjacent Class 1, 2, 3 or 4 land.*

It is unlikely that the works will impact on acid sulfate soils in this area. No further assessment is required.

Figure 15: Extract from Acid Sulfate Soils Map

Clause 7.2 Flood Planning

The site falls outside of level of probable maximum flood therefore, no further assessment is required.

4.4 Development Control Plans

Greater Taree City Council Development Control Plan

Our assessment of the proposal confirms that the proposal satisfies Council's relevant development controls as shown in Table 5.

Table 5: Development Control Matrix

DCP REQUIREMENT	COMMENT
PART A – PRELIMINARY INFORMATION	
A1 – A3	Noted
PART B – CHARACTER STATEMENTS	
B1 General	A Character Statement provides a schematic snapshot of a locality. It identifies the qualities and values of the locality, the nature of the built form, the environmental qualities, role in the hierarchy of localities and access to services. A character statement identifies what is unique to an area, what is valued and to be retained and provides opportunities for change to occur and in what form.
B1.2 Towns B1.2.2 Old Bar	The character statement for Old Bar is yet to be drafted.
PART D - ENVIRONMENTAL REQUIREMENTS	
D1 Coastline Management	Refer to Coastal hazard assessment included in Appendix I.
D2 Environmental Buffers	Not Applicable.
D3 Earthworks, Erosion & Sedimentation	Given the flat topography of the site building work shall be designed to ensure minimal cut and fill is required in the construction phase. Erosion and sediment control measures will be installed both during and following any works. An Erosion and Sediment Control Plan is included in Appendix D.
PART G - CAR PARKING & ACCESS	
G1 Car Parking & Access	The development will not result in an increase in student or staff numbers, therefore, no additional onsite car parking is required. The proposed building has been located and designed so that it does not obstruct access to the existing car park or site distance associated with ingress and egress from the car park. Refer to traffic impact assessment include in Appendix K
PART M - SITE WASTE MINIMISATION & MANAGEMENT	
M1 General	Noted. No change to the ongoing waste management on the site is proposed.
M2 Demolition of Buildings & Structures	A waste management plan can be provided with the construction certificate as required.
M3 Construction of Buildings & Structures	Where possible, materials will be salvaged for recycling and reuse during the demolition process.
PART N - LANDSCAPING REQUIREMENTS	
N1 Landscaping Requirements	Noted
N2 General Landscaping Requirements	Additional landscaping will be undertaken as shown in the Landscape Plan included in Appendix B.

4.5 Water Management Act 2000

Under Part 3 of Chapter 3 a person must obtain a permit for water use approval, water management work approval or activity approval.

No building works are proposed in close proximity to a water course and the integrated approval of Office of Water is not required in this instance.

4.6 Rural Fires Act 1997 & Planning for Bushfire Protection

The subject site is located within a designated bushfire prone area (Refer to Figure 16).

Figure 16: Excerpt from Bush Fire prone Land Map

The majority of the school site is mapped as vegetation buffer.

The proposed changes to the school can be identified as a Special Fire Protection Purpose (SFPP) under Clause 100B of the Rural Fires Act 1997. The application therefore requires referral to the NSW Rural Fire Service for concurrence.

The application includes a detailed Bushfire Report, included in Appendix E.

The report concludes that the site of the proposed building is within the required 40m setback to category 1 bushfire prone vegetation and needs to be located outside of the setback. Notwithstanding this, there are already buildings within this area and the new building will be designed appropriately.

4.7 Threatened Species Conservation Act 1995

The TSC Act aims to conserve biological diversity and promote ecologically sustainable development. This is to be achieved by preventing the extinction and promoting the recovery of threatened species, populations and ecological communities

The site does not form part of an ecological corridor and is not identified as 'critical habitat'. Accordingly, a seven part test is not warranted in this instance.

4.8 Environment Protection Biodiversity Conservation Act 1999

There are no known nationally listed threatened species that may be affected by the proposal. Therefore, referral of the proposal to the Commonwealth Minister for the Environment is not required.

4.9 Heritage Act 1977

The objects of the Act include:

(a) to promote an understanding of the State's heritage,

(b) to encourage the conservation of the State's heritage.

Old Bar Airfield (heritage item I46) is an item of state significance and has national historic significance as a rare intact and representative example of a key `aerodrome' from the earliest days of Australian aviation.

The southern boundary of I46 is approximately 240 metres northeast of Old Bar PS and it is a further 175 metres to the site of the proposed school building in the southwest corner of the school grounds.

There is no line of sight from Old Bar PS to Old Bar Airfield and the proposed development will have no impact upon the heritage significance of the airfield or will it compromise the National Trust of Australia recommendation "that steps be taken for the re-opening and permanent conservation (via a Conservation Plan) of the Old Bar Airfield as an historic, operating airfield for air pageants and its traditional low-key use for small aircraft and particularly for emergency purposes." (National Trust of Australia (NSW) 1998).

5 Section 79(C) Assessment

5.1 (a)(i) - The Provisions of any Environmental Planning Instrument

As outlined in Section 4.0 the proposal has been prepared in light of the relevant environmental planning instruments.

5.2 (a)(iii) The Provisions of any Development Control Plan

The proposal has been prepared having regard for relevant DCP requirements, refer Section 4.0.

5.3 (b) The Likely Impacts of That Development

Environmental Responsibility and Land Capability

Ecological Values

No vegetation is required to be removed as part of the proposal and therefore no ecological impacts are foreseen.

Scenic Values

It is not envisaged that the development will have an adverse impact on the scenic qualities of the locality. The character of the area which interfaces with where the development is to take place is urban. The architectural theme reflects the use of the site as a school.

Acoustic Impact

The proposed alterations and additions will not result in an increase in student or staff numbers and is located considerable distance from any major noise receptors, such as residential areas. It is not anticipated that the proposal will have any additional acoustic impacts.

Any noise during construction will be managed by an appropriate construction management plan.

Tree Preservation and Management

The proposed development will not involve the removal of any significant vegetation.

Erosion Prevention and Sediment Control

An erosion and sediment control plan has been prepared and is included in Appendix D.

Energy Efficiency / Sustainability

The proposal is considered sustainable through energy efficient design and construction.

Proposed classrooms have been designed to take advantage of natural features including prevailing winds and solar access.

Overshadowing

Some overshadowing of playground will be experienced, however this will not affect any residential properties nor the use of the playground.

Privacy

The proposed development has been designed and orientated to retain the privacy of children and nearby residential developments.

Social Impact & Economic Impact

The proposed alterations and additions to Old Bar Public School will provide both social and economic benefits to the local community. The high-quality design aims to enhance communities, achieve energy efficiency and deliver flexible learning facilities.

The development is a significant opportunity to future proof Old Bar Public School through replacing temporary demountable buildings with permanent classrooms and upgrading facilities.

Additionally, the proposed development will provide local employment during the construction stage.

Heritage

There are no known European heritage items on the site and the proposed development does not affect the heritage significance of identified heritage items within the vicinity of the site.

An AHIMS search (refer Appendix F) was undertaken and found that no known sites of significance have been registered in the vicinity of the subject land. The location of the new building has already been substantially disturbed and it is highly unlikely that any objects would be present, however should any object be located during construction appropriate protocols will be followed.

Infrastructure and On-site Services

The site is serviced by power, telecommunication, sewer and water.

The Stormwater Management Plan provides details on proposed stormwater drainage and detention (refer Appendix D).

Transport, Access, Parking and Servicing

The development will not result in an increase in student or staff numbers. The existing car spaces and drop-off and pick-up areas on and off site will be retained and will not be altered. No additional impacts on the site or area are foreseen.

A traffic impact assessment has been prepared and is included in Appendix K.

Amenity

The proposal will not cause any inappropriate impacts for neighbours and is consistent with the amenity of the area. It uses an integrated architectural and landscaping design which will make a positive contribution to the desired streetscape and amenity of the area.

5.4 (c) The Suitability of the Site for the Development

The Statement of Environmental Effects has determined that there are no constraints that would restrict the development proposed. The site is therefore suitable for the development proposed.

5.5 (e) Public Interest

The public interest is best served by promoting sustainable development that is rational, orderly and economic. The proposal will generate positive social, environmental and economic benefits.

Accordingly, the proposal is considered to be in the public interest.

6 Conclusion

The Statement of Environmental Effects has been prepared having regards for the requirements of section 79C of the Environmental Planning and Assessment Act, 1979 and satisfies all relevant planning legislative requirements.

Our assessment of the proposal confirms:

- The development will have both social and economic benefits to the local community, achieves energy efficiency and will deliver flexible learning facilities.
- The development is a significant opportunity to future proof Old Bar Public School and deliver a high-quality education establishment that meets the needs of residents; and
- The development is in the public interest and will provide local employment during and after construction.

The proposal represents rational, orderly, economic and sustainable use of the land and should therefore be supported.

APPENDIX A
Architectural Plans

Provided under separate cover

APPENDIX B
Landscape Plans

Provided under separate cover

APPENDIX C
Geotech Report

Provided under separate cover

APPENDIX D
Engineering Plans

Provided under separate cover

APPENDIX E
Heritage Impact Assessment Report

Provided under separate cover

APPENDIX F
AHIMS Search

Provided under separate cover

APPENDIX G
BCA Compliance Report

Provided under separate cover

APPENDIX H
Survey Plan

Provided under separate cover

APPENDIX I
Coastal Hazard Risk Plan

Provided under separate cover

APPENDIX J
Clause 4.6 Submission

Provided under separate cover

APPENDIX K
Traffic Impact Assessment

Provided under separate cover

NSW RURAL FIRE SERVICE

The General Manager
MidCoast Council
PO Box 482
TAREE NSW 2430

Your Ref: 87/2018/DA
Our Ref: D17/3282
DA17092109399 PC

ATTENTION: Lisa Proctor

13 February 2018

Dear Ms Proctor,

Integrated Development – Lots 204, 222, 239 & 274 DP 753149, 2 & 10 Smith Street and Lot 274 David Street, Old Bar

I refer to your letter dated 5 February 2018 seeking general terms of approval for the above Integrated Development in accordance with Clause 55(1) of the 'Environmental Planning and Assessment Regulation 2000'.

This response is to be deemed a bush fire safety authority as required under Section 100B of the 'Rural Fires Act 1997' and is issued subject to the following numbered conditions:

Asset Protection Zone
The intent of measures is to minimise the risk of bush fire attack and provide protection for emergency services personnel, residents and others assisting fire fighting activities. To achieve this, the following conditions shall apply:

1. At the commencement of building works and in perpetuity the entire area of Lots 204, 222 and 239 DP 753149 shall be managed as an inner protection area (IPA) as outlined within section 4.1.3 and Appendix 5 of 'Planning for Bush Fire Protection 2006' and the NSW Rural Fire Service's document 'Standards for asset protection zones'.

Water and Utilities
The intent of measures is to provide adequate services of water for the protection of buildings during and after the passage of a bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building. To achieve this, the following conditions shall apply:

Postal address
Records
NSW Rural Fire Service
Locked Bag 17
GRANVILLE NSW 2142

Street address
NSW Rural Fire Service
Planning and Environment Services (North)
Suite 1, 129 West High Street
COFFS HARBOUR NSW 2450

T (02) 6691 0400
F (02) 6691 0499
www.rfs.nsw.gov.au
Email: pes@rfs.nsw.gov.au

2. Water, electricity and gas are to comply with section 4.1.3 of 'Planning for Bush Fire Protection 2006'.

Evacuation and Emergency Management
The intent of measures is to provide suitable emergency and evacuation (and relocation) arrangements for occupants of special fire protection purpose developments. To achieve this, the following conditions shall apply:

3. Arrangements for emergency and evacuation are to comply with section 4.2.7 of 'Planning for Bush Fire Protection 2006', including the preparation of an emergency / evacuation plan consistent with the NSW RFS document titled 'A guide to developing a bush fire emergency management and evacuation plan'. A copy of the plan shall be provided to the consent authority and the local Bush Fire Management Committee prior to occupation of the development.

Design and Construction
The intent of measures is that buildings are designed and constructed to withstand the potential impacts of bush fire attack. To achieve this, the following conditions shall apply:

4. Construction shall comply with section 3 and section 6 (BAL 19) of Australian Standard AS3959-2009 'Construction of buildings in bush fire-prone area' or NASH Standard (1.7.14 updated) 'National Standard Steel Framed Construction in Bushfire Areas – 2014' as appropriate and section A3.7 Addendum Appendix 3 of 'Planning for Bush Fire Protection' 2006', except that the roof, southern elevation and eastern elevation shall be constructed to comply with section 3 and section 7 (BAL 29) Australian Standard AS3959-2009 'Construction of buildings in bush fire-prone areas' or NASH Standard (1.7.14 updated) 'National Standard Steel Framed Construction in Bushfire Areas – 2014' as appropriate and section A3.7 Addendum Appendix 3 of 'Planning for Bush Fire Protection' 2006'.

5. Roofing shall be gutterless or guttering and valleys are to be screened to prevent the build-up of flammable material. Any materials used shall be non-combustible.

Landscaping

6. Landscaping to the site is to comply with the principles of Appendix 5 of 'Planning for Bush Fire Protection 2006'.

This letter is in response to a further assessment of the application submitted and supersedes our previous general terms of approval dated 1 December 2017.

For any queries regarding this correspondence, please contact Paul Creenaune on 6691 0400.

Yours sincerely,

Alan Bawden
Team Leader – Development Assessment & Planning

The RFS has made getting information easier. For general information on 'Planning for Bush Fire Protection, 2006', visit the RFS web page at www.rfs.nsw.gov.au and search under 'Planning for Bush Fire Protection, 2006'.

NSW GOVERNMENT | Education

21 February 2018

Lisa Proctor
Development Planner
Midcoast Council

Via email: lisa.proctor@midcoast.nsw.gov.au

REF: 87/2018DA: OLD BAR PUBLIC SCHOOL: LOT 274 WITHDRAWAL

Dear Lisa,

The Department of Education lodged a Crown Development Application (DA) with Council on the 4th September 2017. The DA relates to building works within the Old Bar Public School. Lot 274 in DP 753149 formed part of the DA, as land within the control of the Department of Education. Lot 274 is not effected or required for the DA determination to proceed.

During Council's assessment of the DA, the Department of Education has examined its ownership and obligations relating to Lot 274 and confirms it has no ownership nor obligations in this regard. The Department of Education requests Council disregard all references to Lot 274 in considering the DA submission and its supporting documentation.

Yours sincerely

Laura Mella
Program Manager
Capital Works
School Infrastructure NSW

Conrad Gargett Pty Ltd

Level 26 / 240 Queen Street
Brisbane Queensland 4000

t +61 7 3229 3555

conradgargett.com.au

29 March 2018

Lisa Proctor
Development Planner
Midcoast Council Manning Region

Dear Lisa,

Re: REF: 87/2018DA: Old Bar Public School: Draft Consent Conditions: Amendment Request

Property Owner:	Department of Education
Property Details:	10 Smith Street Old Bar NSW 2430, 2 Smith Street Old Bar NSW 2430 Lot 222 DP 753149, Lot 204 DP 753149 and Lot 239 DP 753149
Development Details:	Alterations & Additions to Old Bar Public School

Thank you for providing the Department of Education with draft Development Application Consent Conditions received on the 2nd February 2018. We confirm that The Department of Education has reviewed and given due consideration to the draft Consent Conditions and confirms the draft Consent Conditions are generally accepted, excluding Condition 12, by the Department of Education and can be forwarded by Council to the Joint Regional Planning Panel for assessment.

Draft Consent Condition 12 is contested by the Department of Education. It is requested that the Council forwards this letter to the Joint Regional Planning Panel, requesting that it amends this Condition to the effect that the Department of Education is providing sufficient community and social benefit to the Old Bar and surrounding community by expanding and upgrading the school, it should not be subject to Developer Contributions.

The Department of Education requests that the Joint Regional Planning Panel determination considers:

- The important social, economic and community benefit the school will provide to the local community;
- Section 4.33 of the Environmental Planning & Assessment Act as the Department and applicant have declined to accept the condition; and
- Similar projects where Joint Regional Planning Panels have determined School upgrades to be exempt from Developer Contributions, including Development Applications: 2016SYW228, 2016SYE085, 2016SYE084, 2016SYE128.

It is noted that a recent JRPP determination of School upgrades at Pottsville Public School excluded S94A contributions as part of the conditions of development consent. The application contained School upgrades similar to Old Bar Public School.

Yours sincerely,

Conrad Gargett

Simon Moisey
Associate